FormsPro 4000se Series

Operator's Manual

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Part Number 5593

This equipment has been tested and found to comply with the limits for a Class A Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emissions as set out by the ICES-003 standard, of the Canadian Department of Communications.

Cet appareil numérique n'émet pas de bruits radioélectroiques depassant les limites de Classe A prescrites dans la norme NMB-003 Édictée par le Ministre des Communications du Canada.

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Specifications are subject to change without notice.

Read all setup and operating instructions before proceeding with operation.

Operate printer only on a firm, solid surface.

Do not operate in an enclosure unless properly ventilated. Make sure no ventilation openings are blocked or obstructed, which may result in the printer overheating.

Do not operate near a heat source.

No user-serviceable parts inside. Refer service or repairs to a qualified service professional.

Use of genuine Printek replacement parts is required to warrant proper, safe operation.

Any alteration or modification of this device voids the user warranty and may make the product unsafe to operate.

The printhead and motors get hot during use. Wait until they cool before touching them.

Make certain the printer is disconnected from AC power before removing any covers or performing any required cleaning or maintenance.

Connecting this printer to an ungrounded receptacle can result in electrical shock.

Never place the printer near inflammable or explosive substances. Do not operate near liquid or spill liquid into the printer at any time.

Lesen Sie vor der Inbetriebnahme die Aufbau- und Bedienungsanleitung.

Der Drucker muss zum Betrieb auf einer festen, soliden Oberfläche stehen.

Betreiben Sie den Drucker nicht in einem kleinen, geschlossenen Raum, es sei denn dieser wird ordnungsgemäß belüftet. Achten Sie darauf, dass die Lüftungen nicht blockiert oder versperrt sind, denn dies kann zum Überhitzen des Druckers führen.

Nehmen Sie den Drucker nicht in der Nähe einer Wärmequelle in Betrieb.

Enthält keine Teile, die vom Bediener instandgesetzt werden können. Bitte wenden Sie sich bei Instandsetzung oder Reparatur an qualifiziertes Kundendienstpersonal.

Die Verwendung von echten Printek Ersatzteilen ist notwendig, um ordnungsgemäßen, sicheren Betrieb zu gewährleisten.

Änderungen oder Modifikationen dieses Geräts machen die Garantie ungültig und können den sicheren Betrieb des Produkts gefährden.

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Schließen Sie diesen Drucker nicht an eine ungeerdete Steckdose an; dies kann zum Elektroschock führen.

Setzen Sie den Drucker niemals in die Nähe von feuer- oder explosionsgefährlichen Stoffen. Betreiben Sie den Drucker nicht in der

Nähe von Flüssigkeiten und lassen Sie keine Flüssigkeiten in den Drucker gelangen.

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INTRODUCTION

Thank you for purchasing a Printek FormsPro 4000se Series Printer. This printer has been designed to provide years of service handling your most demanding printing requirements.

The FormsPro 4000se Series printers offer higher throughput than all other printers in its class. In addition, an easy to use front panel combined with the ability to store ten different form configurations makes handling multiple forms as simple as a button press for the operator.

Models and Options

The FormsPro 4300se, 4500se and the FormsPro 4503se differ only in the number of tractor paths available, one path or three.

Options available for both models include:

- Ethernet 10/100BaseT Print Server
- Wireless Ethernet Print Server
- Imager Bar Code Co-processor
- ImagerPlus Bar Code Co-processor
- Print Stand (required for reduced sound levels)
- External FormsCutter
- Setup Module
- Sound Enclosure

Manual Contents

**Unless specifically noted, all instructions and information herein is valid for all models in the 4000se series.*

- GETTING STARTED provides instructions for installation, setting up the computer interface, installing the ribbon cartridge, loading paper, and performing a printer self-test.
- DAILY OPERATION provides more detailed descriptions of the features that are used most frequently. These include the "every day" buttons and indicators on the control panel, selecting or loading new forms, ejecting forms, changing the ribbon cartridge, aligning print with preprinted forms, and causes for common error conditions.
- PRINTER CONFIGURATION provides detailed information on how to use Setup to permanently store parameters for each of the ten forms, parameters for the standard and optional interfaces, and parameters for other options.
- SPECIFYING FORMS provides tips for form construction and layout.
- MAINTENANCE AND TROUBLESHOOTING lists more serious error messages than discussed in the *Daily Operation* section, preventive maintenance, and how to obtain service.
- ADVANCED SETUP FEATURES provides information on how to set menu security.
- USING REMOTE SETUP describes how to "set up" default parameters from a host computer.
- USING THE SETUP MODULE describes how the optional Setup Module can be used to copy Setup parameters from one printer to another.
- PRINTER RESET CONDITIONS describes the state of the printer after power up or reset.

- CONTROL CODE AND ESCAPE SEQUENCE SUMMARIES lists the commands supported for each printer emulation.
- ASCII CHARACTER TABLES show the characters for each character set.
- SPECIFICATIONS list the operating ranges and ratings of the printer.
- GLOSSARY OF TERMS provides definitions for terms used in this manual.

GETTING STARTED

This chapter will use the fewest possible steps to get the first time user up and running quickly. You will be guided through the following steps:

- Finding a suitable location and installing the printer
- Setting up a host interface if necessary
- Installing the ribbon cartridge
- Loading paper
- Performing a printer self-test

Installation

Before installation, a suitable site must be chosen. Suitable sites include offices, computer rooms, and most factory environments. The Printek FormsPro 4000se printers have been designed to be rugged, heavy-duty printers. As such, they will handle most harsh environments, but should not be placed in direct sunlight or in areas that will exceed the rated temperature, humidity, or power requirements. For details, refer to "SPECIFICATIONS" on 111.

Once a site has been selected, the printer should be placed on a Printek print stand. The Printek print stand is especially recommended for the FormsPro 4503se and is required to meet the low noise rating of the printer. Of course, another sturdy print stand or table with a slotted top for feeding paper into the bottom of printer may be used.

The print stand should be located in an area large enough to provide easy access to both the front of the printer and the rear for accessing printed output. Unpack the printer as described in the "FormsPro 4000se series Unpacking Instructions" and place the printer on the print stand.

Note: *Placing the printer on the print stand is best accomplished with two people. Proper lifting technique should be observed.*

Caution: Before connecting or turning on power, make sure that all shipping materials have been removed. These materials include a cable tie that secures the print head carriage (open ribbon lid to access) and remove the cable tie securing the front panel to the base. When unpacking a FormsPro 4503se, open the front of the unit by releasing the latch panel of the printer. Remove the two cable ties securing the tractor shuttle to the front of the lower side plates, and the two ties located toward the rear of the shuttle assembly.

Next, connect the power cord supplied with the printer to the printer and an appropriate power outlet. Now connect the computer cable to the appropriate interface on the rear panel of the printer.

Interface Set Up

Depending upon which interface is being used to connect the printer to the host computer, some set up may or may not be required. This is true of the standard parallel or serial ports The factory default settings for each interface should work well for most installations. However, the following paragraphs provide some basic information about each interface and also refer to the page number in the Configuration chapter where all the details for each interface are described. If you need to make changes to the default settings, please refer to "**Introduction to Setup**" on page 43 for instructions on how to access the printer's Setup menus.

Once you are comfortable that the interface settings match those required by your computer, proceed to the next section, "**Installing the Ribbon Cartridge**" on page 10.

RS-232C Serial Interface

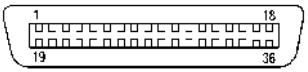
This interface uses a 25 pin "D" connector as described below. The default settings are 9600 baud, 8 data bits, 1 stop bit, and no parity with hardware handshake on pin 11. The default printer emulation is Epson. For a complete description of all the default settings for this interface, refer to page 55.

Pin	Signal
1	Chassis ground.
2	Transmit data. (Printer output).
3	Receive data. (Printer input).
4	Request to send (set). (Printer output).
5	Clear to send (ignored). (Printer input).
6	Data set ready (ignored). (Printer input).
7	Signal ground.
8	Carrier detect (ignored). (Printer input).
11	Printer busy. (Printer output).
20	Data terminal ready. (Printer output).

RS-232C Serial Interface Connector.

Parallel Interface

This interface uses the standard 36 pin parallel connector as shown below. The default printer emulation is Epson.



Pin	Signal	Pin	Signal
1	DATA STROBE	10	ACKNOWLEDGE
19	DATA STROBE RTN	28	ACKNLG RETURN
2	DATA 1	11	BUSY
20	DATA 1 RETURN	29	BUSY RETURN
3	DATA 2	12	PAPER ERROR
21	DATA 2 RETURN	13	SELECT
4	DATA 3	14	AUTO FEED
22	DATA 3 RETURN	16	±0V
5	DATA 4	17	CHASSIS GROUND
23	DATA 4 RETURN	18	+5V at 200mA Max.
6	DATA 5	31	INIT
24	DATA 5 RETURN	30	INIT RTN
7	DATA 6	32	FAULT
25	DATA 6 RETURN	35	+5V LOGIC HIGH
8	DATA 7	36	SELECT IN
26	DATA 7 RETURN		
9	DATA 8		
27	DATA 8 RETURN		

Parallel Interface Connector

Ethernet 10/100BaseT Print Server

This interface uses a standard RJ-45 connector and the default printer emulation is Epson. For a complete description of all the default settings for this interface, refer to "Parallel/LAN Interface Items" on page 59. For additional software installation and operational information, please refer to the Troy XCD Quick Install Manual shipped with the unit.

Wireless Ethernet Print Server

This interface is intended for 802.11b wireless connectivity. It may also be used with conventional CAT-5 twisted pair wiring, using the standard RJ-45 connector. The interface automatically senses when a CAT-5 connection is present and will disable the wireless capability.

For additional software installation and operational information, please refer to the Printek Wireless Ethernet Print Server Manual shipped with the unit.

Installing The Ribbon Cartridge

The Printek FormsPro printer has been designed to make installing Printek brand ribbons a simple, clean process. Unlike other printers, there is no need to touch the ribbon fabric or deal with difficult to position ribbon guides. The following sections explain why the use of Printek brand ribbons should be important to you and will guide you through installing the ribbon cartridge.

Why Use Only Printek® Brand Ribbons

Printek® Brand Ribbon Label

The above label on each ribbon can identify Printek brand ribbons. There are many reasons to use only Printek brand ribbons in your FormsPro 4000se Series printer. First of all, ***using only Printek brand ribbons will automatically extend the print head warranty to two years***.

The reason this is possible is that Printek brand ribbons are manufactured to much higher quality standards than those offered by other manufacturers. This provides not only longer print head life, but also longer ribbon life… ***23 million characters*** as compared to only 15 million characters from some generic ribbons.

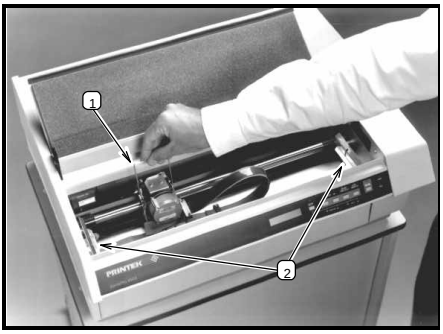
Remember that using *only* Printek brand ribbons is important because the wear that is started and the contamination that remains from even one inferior ribbon will continue to damage the print head. Also, damage to other printer components that is caused by the use of non-Printek ribbons will not be covered by the printer's warranty.

Using inferior ribbons would be like using poor quality fuel in your automobile. Premature engine failure and poor performance leading up to the failure would be the best you could expect.

Other useful features available only with the use of Printek brand ribbons are that the printer will not allow printing if a ribbon is not installed, and the printer will alert the operator when a ribbon needs to be changed.

Ribbon Installation

1. Open the ribbon lid on top of the printer and position the print head for ribbon loading by lifting the ribbon loading handle as indicated in the following picture.



1. Opening the Ribbon Loading Handle
2. Ribbon Support Brackets

2. Remove the new ribbon from its plastic bag and make sure the ribbon fabric is taut by turning the knob on top of the ribbon cartridge in a counterclockwise direction as indicated by the arrow on the cartridge.

3. Place the right hand end of the ribbon on the support bracket while you align the plastic tabs with the slots in the bracket as shown below.

Installing the Ribbon Cartridge

4. Align and lower the left end of the ribbon onto the left support bracket until it snaps into place, while guiding the ribbon fabric between the nose of the print head and the ribbon guide pins. Continue to lower the cartridge until the tab on the left end of the cartridge snaps into place.

5. Finally, lower the ribbon-loading handle to its original position.

Closing the Ribbon Load Handle

6. Close the ribbon lid on top of the printer.

Loading Paper

Please refer to the appropriate section below for loading paper in the FormsPro 4300se, 4500se, or 4503se.

FormsPro 4300se & 4500se Single Tractor Model

If the printer is not currently turned on, push the ON-1 side of the power switch on the right side of the printer. After you turn on the printer, it performs several self-tests.

Note: *Paper is installed through the slot in the bottom of the printer.*

1. To open the unit so you can install paper, pull outward on the bottom of the lower front panel of the printer as shown to release the latch.

Opening Latch Panel

2. While you pull outward on this panel, lift the front of the unit to expose the paper tractors. The top of the unit will support itself in the up position while you load paper.

3. To load paper or forms, open the door on each tractor and position the holes in the paper over the pins in the tractors; then close the doors.

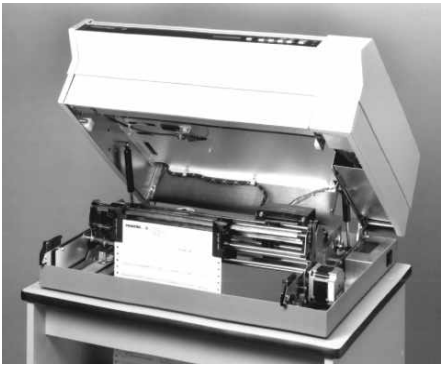
4. If the tractors are not set at the proper width for the paper you are loading, simply move the lever beside the right tractor door to the open position and the tractor will slide sideways.

5. The tractors should be spaced far enough apart so that the paper does not buckle in the center, but not so tight that the pins in the tractors distort the holes in the paper.

Note: *The left tractor position is not adjustable. If it is necessary to adjust where printing begins, refer to "***Aligning Print***" in the "***DAILY OPERATION***" section of this manual.*

A properly installed form is shown below.

Note: *The form does not extend above the top of the tractor doors.*



FormsPro 4503se with Form Installed in Front Tractors.

FormsPro 4503se Tri-Trak Model

1. To install forms in the other sets of tractors in the FormsPro 4503se:

2. Press the FORM SELECT button on the front panel until the desired form setup and tractor path is selected on the LCD display (this button's sequence is 0 through 9, and back to 0, and may be operated while the case is either opened or closed).

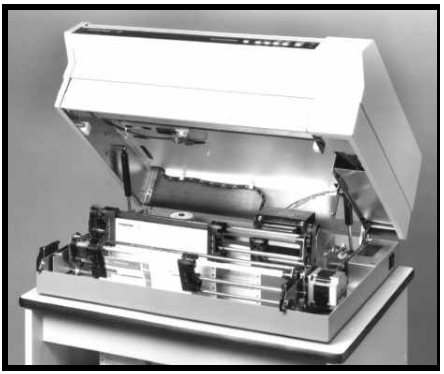
3. Then press the LOAD button. This causes the selected tractors to move into position for loading.

4. To load paper or forms, open the door on each tractor and position the holes in the paper over the pins in the tractors; then close the doors.

5. If the tractors are not set at the proper width for the paper you are loading, simply move the lever beside the right tractor door to the open position and the tractor will slide sideways.

6. Now close the case, select the form you desire (0 through 9), and press the LOAD button. This places the form you have selected into position for printing.

The following picture shows a FormsPro 4503se with forms installed in all three sets of tractors and the center tractor path positioned for loading in place for operation.



Printer Self-Test

The printer performs many self-diagnostics each time power is turned on. If you wish to perform an actual printing test, use the following steps.

1. Make sure the printer is powered on with ribbon and paper loaded.
2. Take the printer off line (the ONLINE indicator will not be lit).
3. Press the SETUP button four times to display `TEST MENU` on the front panel.
4. Press either of the FUNCTION buttons until `Test Mode` is displayed on the top line.
5. Press either of the VALUE buttons until `Barber Pole` is displayed on the bottom line.
6. Press the ONLINE button.
7. The printer will now exit Setup and begin printing a rotating character pattern. To stop or restart printing the test pattern, press the ONLINE button.
8. To take the printer out of the test mode, stop the test by pressing the ONLINE button.
9. Press the SETUP button four times to display `TEST MENU`.
10. Press either of the FUNCTION buttons until `Test Mode` is displayed on the top line.
11. Press either of the VALUE buttons until `Off` is displayed on the bottom line.
12. Press the ONLINE button.

DAILY OPERATION

Introduction

This chapter describes how to use the "everyday" features of the FormsPro 4000se Series printers. The items covered are:

Control Panel Features – describes the most commonly used features of the printer's control panel.

Selecting and Loading Forms – describes how to insert paper or forms into the tractors and how to inform the printer of which forms are "loaded".

Ejecting and Tearing Off a Form – describes how to remove printed documents from the printer.

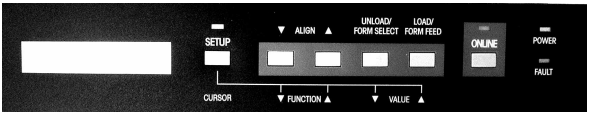
Installing a New Ribbon Cartridge – describes first time installation of the ribbon cartridge.

Aligning Print – describes how to precisely align where data is printed on a form.

Common Error Conditions – describes errors that may occur during normal printing operations.

Control Panel Features

This section assumes that your printer has already been installed according to the information in "**Installation and Interface Setup**", and describes the daily operation of the FormsPro 4000se series printers. In particular, using the control panel, changing paper or forms, and changing the ribbon cartridge are discussed.



Control Panel

The FormsPro 4000se series printers feature an intuitive, easy-to-use control panel that provides immediate access to the controls required by most operators. Individual indicators are available which provide a quick indication of printer status, as well as a two line by sixteen-character display, which provides even more status information.

Many more features, including form and interface parameters, are available through the SETUP mode. All features, which are modified during setup, are stored in nonvolatile memory and are used each time the printer is turned on or reset. For more information, refer to the appendix on "PRINTER RESET CONDITIONS".

The printer's control panel consists of six pushbutton switches, four LED indicators, and a two line by 16-character LCD display as shown above.

The pushbutton switches (or buttons), the LCD display, and the LED indicators provide you with the following controls and status information:

LCD Display and Indicators

LCD Display	This two line by sixteen-character display is used to convey several types of information. When the printer is on line and printing, or ready to print, the display will show the currently selected tractor path and the form currently loaded in that path. When the printer is off line, the display will continue to show this information, additional information based upon other buttons being pressed by the operator, or error conditions such as "`Check Paper`".
POWER	This green LED indicates that the printer is plugged into a power source, the power switch is on, and the internal power supply is functional.
ONLINE	This green LED indicates that the printer is ready to receive printable characters and/or commands from the host computer, and print or perform as requested.
FAULT	This red LED indicates that the printer has detected an error condition, such as paper out, paper jam, or an internal diagnostic error. Many internal diagnostics are performed each time the printer is turned on or reset, and some continue to monitor operation during printing.
SETUP	This yellow LED indicates that the setup mode has been entered.
BELL	The printer sounds a tone when it is directed to do so by a bell character (BEL) from the host computer. Other tones also alert operators of error conditions, such as paper out, and indicate when buttons are pressed.

Control Panel Buttons

ONLINE

This button allows you to place the printer online or offline, as indicated by the ONLINE indicator, and as temporarily displayed on the two line by sixteen character display. It is also used for starting and stopping the test pattern while the printer is in the Barber Pole mode.

Note: *The printer must be offline before you can use any of the other buttons.*

LOAD / FORM FEED

When no paper is currently loaded (a paper out condition exists), this button loads the paper, which has been installed in the tractors by moving the top edge of the paper to the tear bar. In the FormsPro 4503se, this button may also cause the tractor path to change if a form has been selected, which uses a different path (refer to UNLOAD/FORM SELECT on the next page).

If paper is already loaded, this button uses the currently selected form length to advance the paper to the top of the next form.

UNLOAD / FORM SELECT

If paper is currently loaded (no paper out condition exists), this button unloads the paper and places the top edge of the paper in the tractors in the base of the unit. This allows you to change the paper easily. A paper out condition is displayed to indicate that the paper was unloaded successfully.

The printer will attempt to unload up to 36 inches of paper. If the top edge of the paper is not found, paper motion will stop and "Too Much Paper" will be displayed on the LCD display. Normally, previous pages should be torn off before you press UNLOAD. It is recommended that you not use this method to unload more than the current form.

When no paper or form is currently loaded, this button selects one of ten preset form setups. In the FormsPro 4503se, this may also select a different set of tractors to be used the next time you press the LOAD button.

The printer will not allow you to change the form during printing. If you press the FORM SELECT button while there is still a line to print, the button press is rejected, the bell sounds, and the message "`Finish Printing`!" flashes on the LCD display. If this happens, you should place the printer back on-line, allow the form to finish printing, and then place the printer off-line and select the desired new form. If you press and hold this button at power-up/reset on the FormsPro 4503se, and paper has not been loaded, the tractor shuttle moves all the way forward to its parked position.

Note: *The tractor shuttle should always be parked and secured whenever the printer is being transported.*

parked and secured whenever the printer is being transported.

ALIGN ↓↑

These buttons will access the horizontal and vertical print adjustment settings for the currently selected form.

When either ALIGN button is pressed, the horizontal adjustment is shown first. Pressing the VALUE buttons will move the print position on the line left or right by 0.01 inches for each press of a button as indicated on the display. The arrows to the side of the number will indicate the direction the print will be moved.

To access the vertical adjustment, press either ALIGN button. Pressing the VALUE buttons will now move the print up or down on the page by 0.01 inches for each press of a button as indicated on the display. The arrow to the right of the number will indicate the direction the print will be moved.

SETUP

This button is used to set up the various operating parameters of the printer for forms, interfaces, etc. This button is not used on a daily basis. For more information see the chapter on "PRINTER CONFIGURATION".

Selecting And Loading Forms

Note: *A form is not considered "loaded" by merely placing the form in the tractors. To prevent printing on the wrong form, the printer must be made aware of what form(s) are currently loaded. When a new form is placed in the tractors, the form must be "loaded" using the control panel as described in the next section, "Loading a Different Form in the Tractors".*

Selecting a Form Already Loaded In the Tractors

To select a form that is already loaded in the tractors, take the printer off line and press the FORM SELECT button until that form is displayed (a form that is not considered to be loaded will flash `Not Loaded` on the bottom line of the display). The form selection will be displayed as `FORM 0` through `FORM 9` or as the actual name of the form if that has been set up.

To position the form for printing, you may press the FORM FEED button, which will position the form, or you may press the ONLINE button, which will both position the form and place the printer on line.

Loading a New or Different Form In the Tractors

This section describes how to "load" a form in the tractors. This involves physically placing the paper or form in the tractor mechanism and then informing the printer that the new form is present.

Select the Form to be Loaded

1. Take the printer off line by pressing the ONLINE button. The ONLINE green indicator would now be turned off.
2. Press the UNLOAD/FORM SELECT button. This will move the current form from the print position down to the tractors for removal.

Continue to press the UNLOAD/FORM SELECT button until the desired form name is shown on the top line of the display. When the desired form is displayed press the LOAD/FORM FEED button. The form name will be `FORM 0` through `FORM 9` or the actual name of the form if the name has been set in Setup. If the desired form is not considered to be "loaded" by the printer, <`Not Loaded`> will flash on the bottom line of the display. In the case of the FormsPro 4503se the `Not Loaded` message will alternate with the path(s) that this form is to be loaded in.

Changing the Form in the Tractors

1. To unload the currently loaded paper or form, place the printer offline and press the UNLOAD/FORM SELECT button. This positions the top of the paper in the tractors in the base of the printer.

2. To open the case for access to the tractors, pull out on the bottom of the lower front panel of the printer to release the latch as shown below:

Opening The Latch Panel

3. While pulling out on this panel, lift the front of the printer to expose the paper tractors. The top of the unit will support itself in the up position while you load paper.

Caution: Do not open the unit in this fashion while the printer is printing or forms are loaded. Doing so may cause data to be printed incorrectly or paper to jam when the unit is closed. Refer to the section on Control Panel Operation for instructions on unloading forms.

4. Open the doors on the tractors and remove the paper or form through the slot in the base of the printer.

5. Bring the new paper up through the slot in the base

FormsPro 4503se With Forms Installed in Front Tractor Path.

Note: *Form does not extend above the top of the tractor doors.*

If your printer is a FormsPro 4503se, and you wish to install paper in the other tractor paths, you may do so at this time. If your printer is a FormsPro 4300se or FormsPro 4500se, or if you do not wish to load other

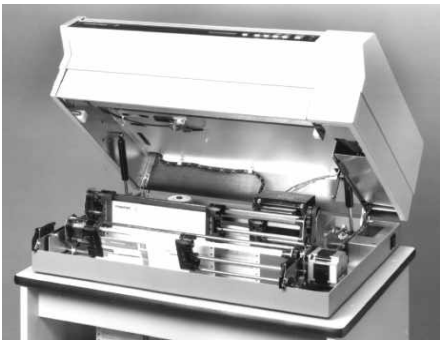
paths, proceed to step 4 on the following page. You can position the other tractor paths for loading without closing the printer's case.

To load another tractor path:

1. Press the UNLOAD/FORM SELECT button on the front panel until the desired form and tractor path is indicated on the LCD display.

2. Then press the LOAD button. This causes the selected tractors to move into position for loading.

3. You may now install the paper in this tractor path.



FormsPro 4503se with Forms in All Tractor Paths
Center Path Positioned for Loading

4. Close the case of the printer by lowering it until the lower front panel closes. The printer LCD will display `Case Closed` when you do this.

5. Check the LCD display to make sure the correct form setup (0-9) or the actual name of the form has been selected. If necessary, press the UNLOAD/FORM SELECT button until the correct one is displayed.

6. Now press the LOAD/FORM FEED button to position the top of the paper at the tear bar.

7. The printer LCD will display "`Load Paper`" when you do this. After the paper is loaded, the LCD will display the form number or the actual name of the form if selected, and if a FormsPro 4503se, the path.

8. Paper installation is now complete. Press the ONLINE button to place the printer back on-line.

Changing to a Form Installed in Another Path

1. To unload the currently loaded paper or form, first tear off any forms that have been printed.

2. Then take the printer offline and press the UNLOAD/FORM SELECT button. This positions the top of the paper in the tractors in the base of the printer.

3. Press the UNLOAD/FORM SELECT button until the desired form and path are displayed on the LCD.

4. Then press the LOAD/FORM FEED button. The tractors will move to the specified path (if necessary) and position the top of the selected form at the tear bar.

5. Press the ONLINE button to place the printer back into operation.

Ejecting And Tearing Off A Form

When most print jobs complete, they will command the paper to be positioned at the top of the next form so that the printer is ready for the next job. This is, however, dependent solely upon how the programmer chose to write your particular application software. If your software does position the paper at the top of the next form, the printer will automatically position the form at the tear bar as shown in the following picture.

Bottom of form at tear bar

If your form is positioned as shown, you may skip the next section on positioning and proceed with "Tearing off a Form" on the next page.

Positioning the Form for Tear Off

1. If your print job has completed and the form is not positioned as shown above, take the printer off line by pressing the ONLINE button.
2. Press the FORM FEED button. This will automatically position the form at the tear bar and you may tear off the form as described next.

Tearing off a Form

1. Make sure the printer is off line by pressing the ONLINE button if necessary. This will prevent the printer from pulling the paper down to start printing the next job while you are tearing off this one.
2. Pull the paper toward the front of the printer and toward one side of the printer as shown.

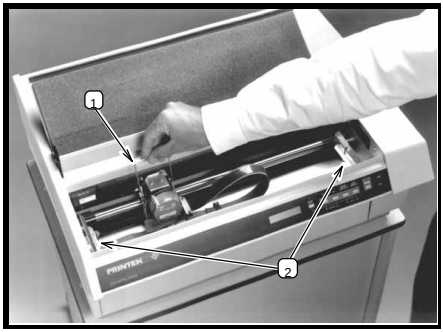
Tearing off a form

3. Place the printer back on line with the ONLINE button (indicator changes to green). The form will automatically be pulled down into position for printing the next time the printer receives data to be printed.

Installing A New Ribbon Cartridge

Removing the Old Ribbon Cartridge

1. Open the ribbon lid on top of the printer and position the print head for ribbon loading by lifting the ribbon loading handle as indicated in the following picture.



1. Opening the Ribbon Loading Handle

2. Ribbon Support Brackets

2. Remove the old ribbon by lifting the left hand end of the ribbon off the left support bracket.
3. Lift out the right end of the ribbon and set the ribbon aside.

Note: *If the printer power is on, "*`Ribbon Removed`*" will be displayed as the ribbon is lifted out.*

Installing the New Ribbon Cartridge

Note: *The use of Printek brand ribbons is recommended for increased ribbon life and print head life. The use of only Printek brand ribbons is required for the extended print head warranty. For details, see* "**Why Use Only Printek Brand Ribbons**" *in the* "GETTING STARTED" *chapter.*

1. Unpack the new ribbon from its shipping container and remove the retainer from the slot on top of the cartridge if present. Make sure the ribbon fabric is not twisted where it enters the cartridge; then tighten the ribbon by turning the knob on top of the cartridge in the direction indicated by the arrow on the cartridge.

2. Place the right hand end of the ribbon on the support bracket as shown below while you align the plastic tabs with the slots in the bracket. Then align and lower the left end of the ribbon onto the left support bracket until it snaps into place. When you do this, the ribbon fabric should lower into the area between the print head and the pins which support the nose shield. If the printer power is on, `Ribbon Installed` will be displayed as the ribbon is installed.

Ribbon Cartridge Installation

3. Lower the ribbon loading bail as shown below. This automatically places the ribbon between the ribbon guides and the print head as the print head is placed back into the printing position.

Lowering (closing) Ribbon Loading Ball

Aligning Print

When a new form is loaded into the printer for the *first time*, it may be necessary to adjust where printing begins. This depends upon how the software that controls the printing was written. If the software was written to perform its own character and line spacing relative to the edges of the form, then adjustment may not be necessary. If the print position needs to be adjusted, the following discussion will describe how this is accomplished. Note that the alignment for the selected form is permanently stored in the printer's memory and does not have to be readjusted each time the form is loaded.

To align print on a particular form, select that form with the FORM SELECT button and then press either of the ALIGN buttons. If the form selected were named "Invoices", the display would now show the following.

```
Aligning Print
  On INVOICES
```

After a short time, the display would change to show that you can now MOVE PRINT left or right. Be sure to remember that you are moving where the print is placed on the page.

```
      MOVE
 Left/Right
      PRINT
   ¬ 0.00" ®
```

The VALUE buttons will move the print left or right in 1/100th inch increments. Note that the left and right arrows will change according to which way the print has been moved from the normal print position. The maximum distance print may be moved is 9.99 inches in either direction.

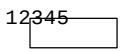
To move the print vertically on the page, press either of the ALIGN buttons and the display will change to the following.

```
    MOVE
  Down/Up
PRINT    0.00"
```

The VALUE buttons will move the print down or up in 1/100th inch increments. Note again that the arrow will change according to the direction the print is to be moved from the normal print position. The maximum distance print may be moved is 9.99 inches in either direction.

Example

In this example, a number needs to be printed in a box on a preprinted form. This form could be a packing list, an invoice, or a check. The first time the page is printed, the number misses the box as shown below.

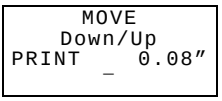


In this case, the *print* needs to be moved to the right and down. To accomplish this, press either of the ALIGN buttons and access the Left/Right option. First move the print to the right using the VALUE buttons. It appears that the text needs to move about three characters. If the text were being printed at 10 cpi (characters per inch), this would be 0.30 inches. After making this adjustment the display would look as follows.

```
    MOVE
Left/Right
   PRINT
¾0.30" ®
```

If you were to print this form now, it would appear as follows, showing that the print still needs to be moved down.

To move the print down, access the Down/Up option by pressing either of the ALIGN buttons. It appears that the print needs to be moved down nearly the height of the characters. These characters are approximately 0.10 inches tall, so move the print down about 0.08 inches. The display should look as follows.



Now when the form is printed again, the text will be printed in the box as shown here.

12345

Common Error Conditions

Whenever the printer detects an error condition, it will automatically go off line. User correctable errors are "flashed" on the display. These errors can typically be recovered from without loss of data and are listed in this section of the manual.

Other errors, which typically result in loss of data, are considered fatal errors. These errors display the word **ERROR** on the top line of the display and do not flash. These errors are listed in the "MAINTENANCE AND TROUBLESHOOTING" section of this manual.

Check Paper

This error is caused either by running out of paper or by a paper jam. The printer will attempt to determine the cause of a paper problem and accompany the "**Check Paper**" message with "**Paper Out**", "**Paper Jam**", or "**Paper Out/Jam**".

If the error is caused by a paper jam, remove the jammed form. If the form remaining in the tractors has tears along the top edge, remove it from the tractors, tear it off, and place the next form in the tractors.

If the error is caused by running out of paper, simply place a new box in the print stand and place the first form in the tractors.

Finally, place the printer back on line by pressing the ONLINE button. This will automatically load the new form and begin printing. Depending upon how the printer has been set up, the printer may start printing where it left off or it may start at the beginning of the page where the error occurred and reprint the entire page. See "Paper Out Fault Action" on page 64 for more information.

No Paper to Load

This error occurs when the LOAD button has been pressed and there is no paper or form in the tractors. Place paper in the tractors and press LOAD again.

Too Much Paper to Unload

This error occurs when the UNLOAD button has been pressed and there is paper present too far beyond the tear bar. This error serves as a warning that you may be placing forms that have already been printed on back into the printer. Tear off any printed forms past the tear bar and press UNLOAD again. This error also occurs if the LOAD button has been pressed and the current form cannot be unloaded.

Selected Form is not Loaded

This error occurs when ONLINE has been pressed and the currently selected form is displaying `Not Loaded.` Either press LOAD to load the selected form or select a different form and then press ONLINE.

No Ribbon or Wrong Ribbon

This error occurs when the printer is attempting to go on line and cannot detect the presence of a ribbon cartridge. This may be due to the ribbon not actually being present in the printer, or the ribbon may not be installed properly.

This error may also occur when attempting to use a non-Printek brand ribbon. Before attempting to use a ribbon brand other than Printek, please read "Why Use Only Printek® Brand Ribbons" on page 10. Then if you do decide to use non-Printek brand ribbons, refer to "Ribbon Checking" on page 67.

Ribbon Lid Open

This error occurs when ONLINE has been pressed and the ribbon lid has been left open. Close the lid and press ONLINE again.

Change Ribbon

This message is periodically displayed when a ribbon has reached the end of its useful life and indicates that a new Printek ribbon should be installed. This error is merely a reminder to change the ribbon and does not force the printer off line.

Other Errors

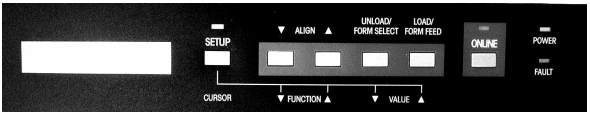
If other errors occur, it is possible that they may not be resolved without the aid of a factory trained service technician. Please refer to the "MAINTENANCE AND TROUBLESHOOTING" section on page 77.

Introduction To Setup

The FormsPro 4500se series printers feature simple, easy to use menus for setting the various operating parameters for the printer. The parameters available in these menus usually only need to be set one time, either when the printer is first installed or perhaps when a new form is to be used. These values are stored in nonvolatile memory, which means that they will remain set even if the printer is turned off. Following this introduction are complete, detailed descriptions of each menu item.

Setup Buttons

For your convenience, the SETUP button and the other buttons used while in the Setup mode are labeled in yellow on the control panel. Once in Setup, these buttons are the FUNCTION and VALUE buttons. The SETUP indicator will flash yellow whenever the printer is in the Setup mode as a reminder to use the yellow labels. The buttons used for Setup are shown below.



Control Panel Setup Buttons

The menu system works on a "what you see is what you get" basis. This means that whatever value is last displayed for an item is the value that will be saved when Setup mode is exited.

Entering Setup

To enter Setup, simply take the printer off line and press the SETUP button. The SETUP indicator will begin to flash yellow and the display will temporarily show the following.

```
  Entering
Setup Menus
```

After the above message has been shown, the display will change to the first menu available, which is the FORMS MENU as shown below. In this case the display will also show which form is to be set up.

```
FORMS MENU
Form 0
```

Using the SETUP Button

At this time you may select a different menu by pressing the SETUP button. Other menus available are the INTERFACE MENU, the OPTIONS MENU, and the TEST MENU. This button will also display an option for exiting Setup. If you do not wish to exit Setup at this time, press either FUNCTION button. The SETUP button may be pressed at any time to select a different menu.

Using the FUNCTION and VALUE Buttons

Once the correct menu is selected, pressing either of the FUNCTION buttons will cause the various items and their current values to be displayed. Note that the items and their values are right justified and are thus controlled by the buttons to the right of the display. To scroll through the items available, use the FUNCTION buttons. To change the value of the displayed item, use the VALUE buttons to step through the possible choices. Remember to leave the correct value displayed before selecting a different item or menu, since "what you see is what you get" when Setup Mode is exited.

Exiting Setup

If you wish to exit Setup press the ONLINE button.

```
       Exit
Setup
Yes
ONLINE
```

Pressing the SETUP button will allow you to make additional menu choices. Pressing the ONLINE button indicated by Yes will display one of the following messages depending on whether or not changes were made, reset the printer if changes were made, and then leave the printer off line.

```
Exiting Menus
Saving Changes
```

```
Exiting Menus
  No Changes
```

To go on line, press ONLINE button again.

Forms Menu

Most form printing applications use several different forms such as packing lists, bills of lading, invoices, checks, and green bar paper for reports. Not all of these forms require the same printer settings for things such as font, character size, line spacing, or form length. The FormsPro 4000se series printers store up to ten complete sets of form parameters, including the name of the form. These ten sets of parameters, or "forms", are permanently stored in the printer's memory and are referred to as "Form 0" through "Form 9". These forms can be accessed from a single button on the printer's control panel or by a command sent from the host computer.

To access the FORMS MENU, enter Setup by pressing the SETUP button. After the "Entering Setup Menus" message has been displayed, the following will appear.

```
FORMS MENU
Form 0
```

Note: *The actual form number will be for the form that was active prior to entering Setup. To select a different form, press either of the* VALUE *buttons until the desired form is displayed. Next press either of the* FUNCTION *buttons to begin displaying the various items for that form. The items available for each form are described on the following pages. The factory default values are indicated with an asterisk (*) in this manual (the asterisk does not appear on the printer's display).*

Forms Menu Items

Form Name

```
Form Name
FORM 0
```

Possible Values: Up to 16 characters of A through Z, Space, 0 through 9

When shipped from the factory, the Form Names will be set to "FORM 0" through "FORM 9". This name may be changed to any combination of capital letters (A-Z), numerals (0-9), or spaces. The name may be up to 16 characters in length.

Entering a name uses the CURSOR button and either VALUE buttons. The CURSOR button will advance the cursor, a flashing block, which is used to indicate the character that is to be changed. The VALUE buttons will change the character where the cursor is currently flashing. The order of characters that may be selected is "ABCDEFGHIJKLMNOPQRSTUVWXYZ, Space, 0123456789". Even though the name will be right justified while being entered, it will be automatically centered on the display when not in Setup Mode, so there is no need to try to center it with spaces.

Tractor Path

```
Tractor Path
      Front
```

Possible Values: Front, Center, and Rear

This item is only available in the FormsPro 4503se and is used to set the tractor path to be used for the currently selected form. Typically, most forms are only loaded in one tractor path and the value will be set to Front, Center, or Rear.

Automatic Cut

```
Automatic Cut
           No
```

Possible Values: No*, Yes

This item is only available when the optional FormsCutter is installed in the printer. When set to Yes, the printer will automatically cut each form at the perforation (based upon the Form Length setting) and eject the form into the paper basket that is installed with the FormsCutter. If set to No, the paper will exit through the top of the cutter and into the basket on the print stand. To manually cut a form or report at the end of the current page, the user can take the printer offline and press the UNLOAD button. See the *FormsPro 4000se Series FormsCutter Manual* for additional information.

Cut Adjustment

```
Cut Adjustment
             0
```

Possible Values: `Auto, -0.2951" … 0* … +0.2951", Auto`

This item may be used to adjust the position of the cut relative to the top-of-form for improved cut accuracy. This item is only available when the optional FormsCutter is installed. Refer to the FormsCutter manual for more information.

Lines Per Inch

```
    Lines/Inch
             6
```

Possible Values: `6*, 8`

This item sets the line pitch to 6 or 8 Lines Per Inch (LPI).

Form Length

```
   Form Length
    66 Lines
```

Possible Values: `1 … 66* … 227 Lines`

This item sets the form length in lines at the current line pitch (LPI). For example: for an eleven-inch form, enter 66 if you are using six lines per inch or 88 if you are using eight lines per inch.

Top Margin

```
    Top Margin
     0 Lines
```

Possible Values: `0* … 226 Lines`

This item sets the top margin in lines. Setting a top margin will reduce the size of the printable area of the page by the number of lines set. Printing will not be allowed above the top margin.

Note: *In most cases changing where printing begins on a form should be accomplished with* ALIGN PRINT *rather than with a top margin. Adding a top margin may cause some programs to*

print the first form correctly and then print following forms too far down the page if the program sending the data does not require the margin.

Bottom Margin

```
Bottom Margin
      0 Lines
```

Possible Values: `0* … 226 Lines`

This item sets the bottom margin in lines. Setting a bottom margin will reduce the size of the printable area of the page by the number of lines set. When the bottom margin is reached, the remainder of the page will be skipped and printing will resume at the beginning of the next page (or top margin if one is set). Adding a bottom margin may cause some data to be printed on the wrong page if the program sending the data does not require the margin.

Characters Per Inch

```
Characters/Inc
              h
             10
```

Possible Values: `10*, 12, 13.3, 15, 16.74, 17.14, 20`

This item sets the default character pitch in Characters Per Inch (CPI). (Note that OCR-A and OCR-B characters are only valid at 10 CPI and will always print at 10 CPI regardless of this setting.)

Left Margin

```
  Left Margin
    Column 0
```

Possible Values: `Column 0* … 268`

This item sets the left margin in columns (characters) relative to the left edge of the paper. The column width is based upon the current character pitch (CPI). The left margin must be less than the right margin. The left margin may be used to cause printing to begin farther to the right on a form. In many cases using ALIGN PRINT may be preferable to using a left margin.

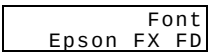
Right Margin

```
  Right Margin
   Column 272
```

Possible Values: `Column 4 … 272*`

This item sets the right margin in columns (characters) relative to the left edge of the paper. A value of 272 is large enough to insure that characters can be printed to the right end of the paper regardless of character pitch (CPI). The right margin must be greater than the left margin. Text characters that would have printed to the right of the margin will be "wrapped around" and printed at the beginning of the next line if Truncate is set to No. Graphic data that would have printed to the right of the margin will be truncated (not wrapped around). However, any data that would print before the right margin but beyond the edge of the paper (either in the sprocket holes or on the platen) will be truncated.

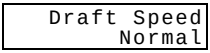
Font



Possible Values:
```
Epson FX FD*, DF, LQ;
PC English FD, DF, LQ;
PC Latin 2 FD, DF, LQ;
DEC LA120 FD, DF, LQ;
EBCDIC FD, DF, LQ;
OCR-A OQ;
OCR-B OQ
Roman-8 FD, DF, LQ, ML
Euro (858) FD, DF, LQ
ML (850) FD, DF, LQ
```

This item selects the default font to be used.

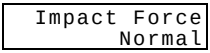
Draft Speed



Possible Values: `Normal*, Fast`

This item selects whether the Draft Font (`DF`) or the Fast Draft (`FD`) font will be selected when the printer receives a "select draft font" command from the host computer. This will allow the Fast Draft font to be used with programs, which would not be able to otherwise.

Impact Force



Possible Values: `Normal*, High`

This item may be used to select High Impact for improved printing on multipart forms that do not otherwise print well on the back copies.

Language

```
Language
USA
```

Possible Values: `USA*, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Finland`

This item selects the character substitution table to be used for an alternate language when printing. The **Epson font** must be selected in order for this feature to work properly. The character substitutions are shown in the following table.

Char Value	35	36	64	91	92	93	94	96	123	124	125	126
USA	#	$	@	[	\	]	^	`	{	¦	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
England	£	$	@	[	\	]	^	`	{	¦	}	~
Denmark	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain	PTS	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	¦	}	~

Zero Style

```
Zero
Normal
```

Possible Values: `Normal*, Slashed`

This item selects whether the numeral zero is printed with or without a slash through it. (This is true for normal text characters. The optional Imager and ImagerPlus Co-processors have a separate setup item for zero characters they generate.)

Unidirectional Printing

```
Unidirectional
No
```

Possible Values: `No*, Yes`

This item selects unidirectional printing instead of bi-directional printing.

This may be used to improve the straightness of vertical lines for critical applications such as printing small bar codes.

Interface Menu

The Interface Menu contains several functions for setting up items pertaining to the hardware interfaces such as the serial and parallel ports as well as the optional 10/100BaseT Ethernet and Wireless Print Server.

The Setup items for each interface are described in one of the following sections.

RS-232C Serial Interface on page 55
Parallel/LAN Interfaces on page 59

Entering the Interface Menu

To Enter the Interface Menu, press the SETUP button until `INTERFACE MENU` is displayed on the top line as shown below.

```
INTERFACE MENU
Interface I/o:
```

Possible Values: `Parallel/LAN*, Serial`

To select a different `INTERFACE`, press either of the VALUE buttons. Next press either of the FUNCTION buttons to select an interface item. Note that the selected `INTERFACE` becomes the one currently in use.

Each interface and the items that pertain to that interface are listed on the following pages. Note that many items are the same for more than one interface since the computer attached to that interface may have different requirements for each of those items.

The factory default values are indicated with an asterisk (*) in this manual (the asterisk does not appear on the printer's display).

RS-232C Serial Interface Items

```
INTERFACE MENU
Serial
```

Emulation

```
Emulation
Epson
```

Possible Values: `Epson*, IBM Proprinter, DEC LA120/210, TTY, Printek, ANSI X3.64, Genicom 3840, Genicom 3410`

Automatic Carriage Return

```
Auto CR
On
```

Possible Values: `Off, On*`

This item enables or disables automatic Carriage Returns (CR) whenever a Line Feed (LF), Vertical Tab (VT), or Form Feed (FF) is received.

Automatic Line Feed

```
Auto LF
Off
```

Possible Values: `Off*, On`

This item enables or disables automatic Line Feeds (LF) when a Carriage Return (CR) is received.

Perform Host Form Feed at Top-of-Form

```
Host FF at TOF
No
```

Possible Values: `No*, Yes`

This item selects whether Form Feeds (FF) will be performed when received from the host computer if the paper is already positioned at the top of form (TOF). Setting this item to `No` will help prevent blank pages.

Characters

```
Characters
Control
```

Possible Values: `Control*, Printable`

This item selects whether certain control character symbols will be printed or be treated as control characters. The effect of this is dependent upon the `Emulation` selected.

Minimum Buffer

```
Minimum Buffer
No
```

Possible Values: `No*, Yes`

This item selects whether the smallest possible I/O buffer should be used. Setting this item to `No` will allow the printer to make maximum use of the I/O buffer (see "Paper Out Fault" on page 64 for more information on buffer size). Setting this to `Yes` may decrease performance, but is useful when the printer is currently printing using the printer with operating systems that try to keep track of which page. This may also be useful when using serial I/O with systems that do not respond quickly enough to handshake signals.

Baud Rate

```
Baud Rate
9600
```

Possible Values: `110, 150, 300, 600, 1200, 2400, 4800, 9600*`

This item selects the baud rate for the serial interface. This must be set to match the baud rate setting on the host computer.

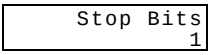
Data Bits

```
Data Bits
8
```

Possible Values: `8*, 7`

This item selects the number of data bits in the serial character frame. This must be set to match the character size setting on the host computer.

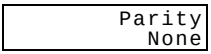
Stop Bits



Possible Values: 1*, 2

This item sets the number of stop bits to be used at the end of the serial character frame. This must be set to match the stop bit setting on the host computer.

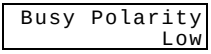
Parity



Possible Values: `None*, Even, Odd`

This item selects the parity checking requirements for the serial data bits. This must be set to match the parity setting on the host computer.

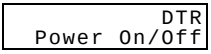
Busy Signal Polarity



Possible Values: `Low*, High`

This item selects the polarity of the busy signal (pin 11 of the RS-232C interface). Busy is set whenever the printer is offline; the serial input buffer is full.

Data Terminal Ready



Possible Values: `Power On/Off*`
`Online/Offline`
`Busy/Not Busy`

Selects the condition to be reflected by the DTR signal (pin 20 of the RS-232C interface). In most cases, especially those involving a MODEM, this signal should be set to indicate `Power On/Off`. Selecting

`Online/Offline` will reflect only the condition indicated and does not reflect a buffer full condition. `Busy/Not Busy` will cause DTR to indicate both the online/offline status and buffer full condition (see "Busy Polarity" above).

XON/XOFF Handshaking

```
XON/XOFF
Off
```

Possible Values: `Off*, On`

Enables or disables the transmission of the XON and XOFF characters from the printer to the host to control data flow to the printer. XOFF will be sent whenever the printer goes offline or the serial buffer is full. XON will be sent when it is again ready to receive characters.

ETX/ACK Handshaking

```
ETX/ACK
Off
```

Possible Values: `Off*, On`

Enables or disables the ACK response to receipt of the ETX character. This handshake method is useful for conditions where there are long transmission line delays such as telephone lines, which may be routed through satellites. An ACK character will be returned to the host computer after an ETX character is received and processed. ETX characters used for handshaking cannot be part of an escape sequence.

RTS/CTS Handshaking

```
RTS/CTS
OFF
```

Possible Values: `Power On/Off*`

If your Host system requires or supports hardware handshaking for data flow control, it may be useful to change this parameter to ON. This may apply especially to older Host systems using Full-duplex communications.

Parallel/LAN Interface Items

Since the optional LAN interface goes into the Parallel port, these interface parameters are the same.

```
INTERFACE MENU
Parallel/LAN
```

Emulation

```
Emulation
Epson
```

Possible Values: `Epson*, IBM Proprinter, DEC LA120/210, TTY, Printek, ANSI X3.64, Genicom 3840, Genicom 3410`

This item selects the emulation to be used whenever the parallel port is active. The emulation should be set to match the type of printer your software supports.

LAN Setup

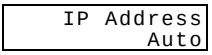
```
LAN Setup
Off
```

Possible Values: `On, Off*`

This item enables or disables the ability to control the optional Ethernet interface card from the front panel. When set to `On`, the Serial Interface is not available, and menu items for the Ethernet card follow. Consult your Network Administrator before changing any of these items.

Note: *Setting this item to* `On` *when the optional Ethernet interface card or optional control loop-back cable is not present, may result in the printer appearing to "hang" when exiting the Setup Menus. After 15 seconds, a LAN Timeout error will be displayed. Press* ONLINE, *then enter the Setup Menus and correct the problem.*

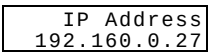
IP Address Method



Possible Values: `Auto*, Static`

This item controls how the optional Ethernet interface card receives its network address. When set to `Auto`, the Ethernet card will receive its network address from a network DHCP server (typical installation). When set to Static, the user sets the TCP/IP address, Subnet Mask and TCP/IP Gateway address as follows:

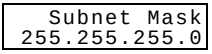
IP Address



Possible Values: `000.000.000.000` … `255.255.255.255`

To set the TCP/IP address, use the CURSOR button to select which digit group you wish to change, and then use the UP/DOWN VALUE button to change the value. The value will change rapidly if the key is held down.

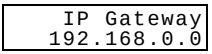
Subnet Mask



Possible Values: `000.000.000.000` … `255.255.255.255`

To set the Subnet Mask, use the CURSOR button to select which digit group you wish to change, and then use either VALUE buttons to change the value. The value will change rapidly if the key is held down.

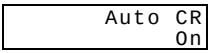
Gateway Address



Possible Values: `000.000.000.000` … `255.255.255.255`

To set the TCP/IP Gateway, use the CURSOR button to select which digit group you wish to change, and then use the VALUE buttons to change the value. The value will change rapidly if the key is held down.

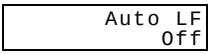
Automatic Carriage Return



Possible Values: `Off, On*`

This item enables or disables automatic Carriage Returns (CR) whenever a Line Feed (LF), Vertical Tab (VT), or Form Feed (FF) is received.

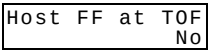
Automatic Line Feed



Possible Values: `Off*, On`

This item enables or disables automatic Line Feeds (LF) when a Carriage Return (CR) is received.

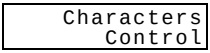
Perform Host Form Feed at Top-of-Form



Possible Values: `No*, Yes`

This item selects whether Form Feeds (FF) will be performed when received from the host computer if the paper is already positioned at the top of form (TOF). Setting this item to `No` will help prevent blank pages.

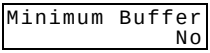
Characters



Possible Values: `Control*, Printable`

This item selects whether certain control character symbols will be printed or be treated as control characters. The effect of this is dependent upon the emulation selected above.

Minimum Buffer



Possible Values: `No*, Yes`

This item selects whether the minimum I/O buffer size should be used. Setting this item to `No` will allow the printer to make maximum use of the I/O buffer (see "Paper Out Fault" on page 64 for more information on buffer size). Setting this to `Yes` may decrease performance, but is useful when the printer is currently printing using the printer with operating systems that try to keep track of which page.

Options Menu

The OPTIONS MENU contains items, which do not pertain only to a specific form or specific interface, but rather affect how the printer works under all conditions. To access the options menu, press the SETUP button until OPTIONS MENU is displayed

```
OPTIONS MENU
```

Press either of the FUNCTION buttons to begin displaying the items available. The factory default values are indicated with an asterisk (*) in this manual (the asterisk does not appear on the printer's display).

Maximum Form Allowed

```
Max Form
Allowed
Form 2
```

Possible Values: Form 0 … Form 2* … Form 9

This item sets the last form number to be displayed for operator selection with the FORM SELECT button or while in the FORMS MENU. This allows the operator to see only the forms that are in use rather than having to sort through several unused forms.

Note: *When setting this value you may not select a value less than the form currently selected when Setup was entered, or less than the form currently selected in the "*Setup: FORMS*" menu.*

Automatic Scroll Delay

```
Auto-Scroll
1 Second Delay
```

Possible Values: Off, 0, 1* to 15 Second Delay

This item sets the number of seconds to delay before scrolling the top of form to the tear bar when the printer is idle (no additional data received

since the last print operation) and a form boundary (bottom of the form according to the Form Length setting for the current form) has been reached. If printing finishes and the form boundary has not been reached, take the printer off line and the FORM FEED button may be used to advance the form to the tear bar. This item may also be used to disable Auto-Scroll by setting the value to `Off`. When disabled, the FORM FEED button must always be used to advance the form to the tear bar.

Paper Out Fault Action

```
Paper Out
    Fault
Finish Page
```

Possible Values: `Finish Page*`
`Reprint Page`
`Break Page`

This item selects what action is to be taken when a paper out condition occurs. The action taken for each of the possible values is described in the following paragraphs.

When `Finish Page` is selected, the printer will attempt to print to the bottom of the page when a normal paper out condition occurs. Conditions that will prevent this from happening are when the end of paper is detected too far from the end of the form (the printer assumes there is not a complete page available), when reverse paper motion is attempted within the last one inch of the form, or when a paper jam occurs. If the printer is unable to finish printing the page, it will attempt to reprint the page as described below (also refer to the Reprint Page Size option which follows). Note that if highly precise printing is required in the last inch of the form, `Finish Page` may not provide accurate enough paper motion since the form is no longer controlled by the tractor mechanism.

When `Reprint Page` is selected, the printer will stop printing as soon as the end of paper or a paper jam condition is detected and the printer will go off line. After a new box of forms is loaded, the printer will attempt to reprint the current page from the beginning. If the printer is able to reprint the page, `Reprinting Page!` will be displayed when the new form is loaded (the previous partially printed page should probably be discarded). If the printer is unable to reprint the page, the page will be broken, `Cannot Reprint - Page Too Large` will be displayed, and

printing will resume where it left off as described in the next paragraph. The printer's ability to complete the reprint successfully depends on whether the data for the current page is still in the printer's memory. Refer to the following Reprint Page Size option for more information regarding how much data may be retained.

When `Break Page` is selected, the printer will stop printing and go off line as soon as a paper out or paper jam condition is detected. After a new box of forms is loaded, printing will resume where it left off. The `Break Page` setting is appropriate when you know a page is too large to reprint (exceeds available buffer size, e.g. contains large graphic images). This will suppress the error message `Cannot Reprint` before printing continues.

Character to Ignore

```
Char. To
Ignore
255
```

Possible Values: 0, … 255*

This allows a single 8-bit character to be discarded as it is received. This is useful when the host application is sending an unwanted control character, for example. Values are in decimal, with printable characters displayed to the left of the decimal value.

To use this feature:

1. Press the either VALUE buttons to select the desired character decimal value. Printable characters will appear to the left of the number.
2. Press either FUNCTION button to display Ignore Character `On/Off`, then either VALUE buttons to turn the feature On or Off.

This feature should not be turned on unless needed.

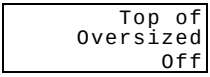
Top of Barcode

```
Top of Barcode
Off
```

Possible Values: `On, Off*`

In Genicom 3840 or 3410 Emulation, this feature repositions the print head at the top of a barcode after the barcode has printed. When disabled, printing continues from the bottom of the barcode. This feature has no meaning in other emulations.

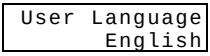
Top of Oversized



Possible Values: `On, Off*`

In Genicom 3840 or 3410 Emulation, this feature repositions the print head at the top of oversized characters after the oversized characters have printed. When disabled, printing continues from the bottom of the oversized characters. This feature has no meaning in other emulations.

User Language

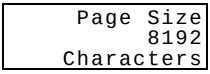


Possible Values: `English*, French, German`

This selects the front panel language that will be used by the printer's LCD display screen. Press the UP/DOWN ARROW keys to change the selection.

Note: *If you change the selected language, you may find it difficult to return to this menu to correct it! Verstechen Sie?*

Reprint Page Size



Possible Values: 0, …, `8192*, …, 28672`

This item selects how much of the 32K byte input buffer is set aside for reprinting a page when `Finish Page` or `Reprint Page` has been selected for the Paper Out Fault Action item (see above). The value selected (0 to 28K bytes in 1K byte increments) should be set to accommodate the largest page expected, but not unnecessarily large since the larger this is set, the smaller the effective I/O buffer. The 8K-byte default setting should be large enough to hold most pages of text, but may not be large enough to hold more complex or graphic filled pages. If the page size selected is not large enough, the page will be broken as described under Paper Out Fault Action item above.

If the Paper Out Fault Action item is set to `Break Page`, the Reprint Page Size may be set to `0` to allow the largest possible I/O buffer.

Truncate Long Lines

```
Truncate Lines
           No
```

Possible Values: `Yes, No*`

When this item is set to `Yes`, long text lines that would wrap around the next line will be terminated at the right margin column or the right usable edge of the platen, whichever is reached first. The remainder of the characters in the line is discarded. Graphics printing always truncates.

Ribbon Checking

```
 Ribbon Check
           On
```

Possible Values: `On*, Off`

This item selects whether or not ribbon checking is active. This feature works exclusively with Printek ribbons. When Ribbon Checking is On, the printer alerts the operator if a ribbon is not installed, or if the ribbon life has been reached (see Ribbon Life below). Ribbon Check may be turned off if these features are not desired.

Ribbon Check may also be turned off to allow the use of non-Printek brand ribbons. Using non-Printek ribbons may limit the warranty on the print head, so before turning Ribbon Check off, please read "Why Use Only Printek® Brand Ribbons" on page 10 and the warranty information on page

114. Note that turning this feature off while still using Printek brand ribbons will not affect the extended warranty.

Ribbon Life

```
Ribbon Life
23 Million
Chars
```

Possible Values: `5 … 23* … 30 Million Chars`

This item sets the number of "draft equivalent" characters to be printed before the `Change Ribbon` message is displayed. "Draft equivalent" is an indication of the average density, or number of dots, in a draft font character. Characters printed using other fonts are weighted according to their own density. Typically, fast draft characters have fewer dots while letter quality and optical quality fonts have more and are weighted as fewer or more draft characters accordingly. Graphics data are weighted according to the actual number of dots printed.

ImagerPlus Graphic Card

```
OPTIONS MENU
ImagerPlus
```

The printer will automatically display ImagerPlus as shown above when the interface is installed. The descriptions in this manual are brief. For more information, please refer to the appropriate Imager or ImagerPlus manual.

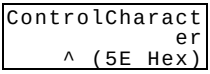
Emulation

```
Emulation
QMS CodeV v2
```

Possible Values: `QMS CodeV v2*, PTX CodeV v2, Printronix IGP`

This item sets the Imager or ImagerPlus emulation mode. `QMS CodeV v2` selects QMS Code V version 2, `PTX CodeV v2` selects Printronix Code V version 2.

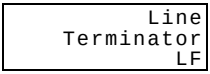
Control Character



Possible Values: `^ (5E Hex)*`
`SOH (01 Hex) through HT (09 Hex),`
`SO (0E Hex) through (FF Hex)`

This item sets the control character used to begin commands. The character normally used for QMS is the caret (^) and the character normally used for IGP is the tilde (~) (if you change the emulation to `Printronix IGP`, you may need to change the control character to the tilde).

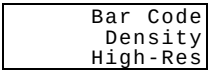
Line Terminator



Possible Values: LF*, CR

This item sets the line terminating character to a Line Feed or a Carriage Return.

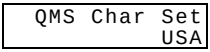
Bar Code Density



Possible Values: `Low-Res, Medium-Res, High-Res*,`
`Graphics Med-Res`

This item sets the density, or graphics resolution, for bar codes.

QMS Character Set
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values:

`USA`	`France`
`United Kingdom`	`Italy`
`Sweden/Finland`	`Spain`
`Norway/Denmark`	`PC Subset`
`Japan`	`CodeV Version1`
`Germany`	

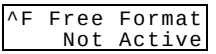
This item selects the character set.

^PY Translation Mode
(QMS CodeV v2 and PTX CodeV v2 only)

Possible Values: `Not Active*, Active`

This item selects whether or not Filter Mode is active at power on or reset.

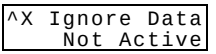
^F Free Format Mode
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values: `Not Active*, Active`

This item selects whether or not the Free Format Mode is active in Filter Mode.

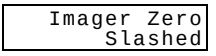
^ X Ignore Data Mode
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values: `Not Active*, Active`

This item selects whether data will be ignored until a ^A is received.

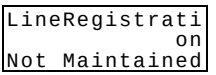
Imager/ImagerPlus Zero Style
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values: `Slashed*, Normal`

This item selects the type of zero character (Ø or O) to be printed by the Imager or ImagerPlus.

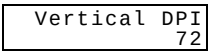
Line Registration
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values: `Not Maintained*, Maintained`

This item selects whether or not the form will automatically be advanced to the next line boundary when Filter Mode is exited.

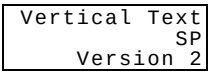
Vertical DPI Resolution
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values: `72*, 70`

This item sets the vertical resolution to 72 or 70 Dots Per Inch.

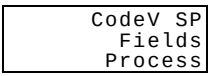
Vertical Text Spacing
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values: `Version 2*, Version 1`

This item selects whether text should be spaced vertically as in Code V version 1 or version 2.

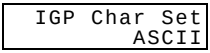
Code V Space Fields
(QMS CodeV v2 and PTX CodeV v2 only)



Possible Values: `Process*, Ignore`

This item selects whether Code V space fields should be processed.

IGP Character Set



Possible Values:

`ASCII`	`English`
`Germany`	`Dutch`
`Sweden`	`France`
`Denmark`	`Spain`
`Norway`	`Italy`
`Finland`	`Turkey`

This item selects the character set.

Delete Logos

```
Delete Logos
No
```

Possible Values: `No*, Yes`

This item selects whether logos should be deleted when a form is deleted.

Quiet Mode

```
Quiet Mode
Not Active
```

Possible Values: `Not Active*, Active`

This item selects whether or not the quiet mode is active at power on.

Spacing Mode

```
Spacing
IGP 10/20/40
```

Possible Values: `IGP 10/20/40*, IGP 30`

This item selects the Spacing mode.

Test Menu

The TEST MENU is used to access some testing as well as some record keeping items. To access the test menu, press the SETUP button until TEST MENU is displayed as shown below.

```
TEST MENU
```

Next press either of the FUNCTION buttons to access the test modes available.

Print the Menus

```
Print the
Menus
No
```

Possible Values: No*, Current Values

This item may be used to print the entire list of current values.

Current Values will print only the items relevant to the current printer configuration and their current values. This provides a means of record keeping or "backup", so that the values can be checked and restored in case an operator inadvertently changes one.

After setting this value, press ONLINE to begin printing. After printing is completed, the value of this item will automatically return to No. Note that once printing begins, taking the printer off line for any reason (ONLINE button pressed, ribbon lid or paper door opened, or a paper fault) will cause printing to be aborted.

Test Mode

```
Test Mode
Off
```

Possible Values: Off*, Barber Pole,
Hex Dump, Demos

When this item is set to `Barber Pole`, the printer will print a rotating character pattern. Printing may be started and stopped with the ONLINE button.

When set to `Hex Dump`, the printer will print all received data in a special debug format, which may be used by programmers to solve software problems. For more information, refer to the Hex Dump section of the *FormsPro 4000se series Programmer's Manual*.

Note: When in Barber Pole mode and Hex Dump mode, if the printer is taken OFFLINE during printing, the printer will remain in these modes. If the printer is put back ONLINE, printing will resume. To exit either of these modes, return to the `TEST MENU` and use either VALUE buttons to set `TEST MODE` to OFF.

Form Construction

Although the FormsPro 4000se series printers have been designed to handle difficult forms, you may come across a form that does not feed reliably or provide adequate print quality on all copies.

One of the main causes of paper misfeeds is a form that is "tented". Tenting is a tent-like bulge at the perforation when forms are unfolded from the box. The printer allows a maximum form thickness of 0.025 inches, which a badly tented form may exceed.

Tenting is usually caused by glue drying on the perforation after the forms maker puts the forms into the box, or forms which are not glued at all. Forms with solid glue lines, which run vertically down the entire form, are the most susceptible. If you experience such a problem, request "interrupted glue line" forms from your vendor. This method stops the glue approximately three-quarters of the way down the form and then resumes gluing at the top of the next form. The gluing should not begin too far below the top of the form or pages of the form will be able to fan apart and be a potential cause of jamming.

Another area where not all forms are alike is in the quality of carbon paper used, or in the way carbonless inks are applied. If the back copies of your form are too light, request a quick-release carbon or a higher quality carbonless inking method.

Form Layout Considerations

When designing preprinted forms, the most common problem is forms that are designed "too tight". This means that boxes where data have to be printed are just barely large enough for the data, and that even the slightest misalignment will cause characters to be printed on at least one of the lines that form the box.

While the print alignment can be adjusted on the FormsPro 4000se series printer to 1/100th of an inch, this is often too much to expect of the forms manufacturer. Where the preprinted information is placed in respect to the tractor holes on the form often varies on every other form in a single box of forms, or from one box of forms to the next.

To help avoid this situation, create larger areas for data by allocating blank lines in the printed data for horizontal lines, and allocating blank columns for vertical lines. If this is not possible due to the amount of data that has to be placed on the form, avoid using a dark color to form the preprinted lines and boxes. Use a lighter color, preferable other than a gray, that will allow the printed characters to still be read if misalignment occurs.

MAINTENANCE AND TROUBLESHOOTING

Error Messages

This section provides a partial list of fatal errors. Fatal errors typically cannot be recovered from without the loss of data. In each case, ERROR is shown on the top line of the display and one of the following messages is shown on the bottom line. Suggested solutions for each of these messages are listed to the right of each error message in the table, which follows. If the suggested solution does not solve the problem, please refer to "**Obtaining Service**" on page 78.

Note that none of these messages "flash" on the display. Messages which are flashed on the display are discussed in the "**Common Error**" section on page 39.

Other errors which are not listed here should be reported to the company where you purchased your printer, or to your nearest Authorized Service Center. If you do not know the name or number of your nearest Authorized Service Center, see "**Obtaining Service**" later in this section.

Error Message	Possible Solution
`Head Blocked?`	Check print head carriage area for obstructions.
`Head Gap`	Usually a result of a bad paper jam. Check for paper wedged in the print head nose shield area.
`I/O Overflow`	Make sure handshaking parameters set in the printer and at the host computer match each other. Make sure interface cables are wired correctly.

Preventive Maintenance

Your FormsPro 4000se series printer requires very little preventive maintenance. It is only suggested that you periodically clear out any excessive paper dust.

Also, the various bearings used in the FormsPro 4000se should not require any lubrication. If you do choose to lubricate any bearings, use only 30 Wt. non-detergent motor oil. DO NOT use any grease or any vegetable based oils.

Obtaining Service

If your FormsPro 4000se series printer should require service, please contact the company where you purchased the printer. If you do not know where the printer was purchased, please call 800-368-4636 to obtain the name and number of your nearest Printek Authorized Service Center or to arrange for factory service.

Security Menu

The SECURITY MENU is for Information System managers who want to be able to set up a printer and then "lock out" operator changes to the various menus. This method of security may be set independently for the Align Print, the Forms menu, the Interface menu, or the Options menu.

When set to Edit Allowed, the user is allowed to make changes to any item in the menu selected. When set to View, the operator can look at the settings, but cannot edit, or change the values. When set to Initialize, the printer will reset all values in that menu to the factory default values and security will be set back to Edit Allowed.

The SECURITY MENU is more difficult to enter than other menus. To be able to access this menu, the printer must be powered on *while pressing* the SETUP button. After the printer has finished its power up self-tests, press the SETUP button until SECURITY MENU is displayed on the top line. Next press either of the FUNCTION buttons to begin setting security.

Align Print

```
Align Print
Edit Allowed
```

Possible Values: Edit Allowed, View Only, Initialize

This item selects whether values set using Align Print (see "**Aligning Print**" on page 36) can be edited or only viewed by the operator. Initialize will reset the Align Print values for all forms to zero.

Forms Menu

Possible Values: `Edit Allowed, View Only, Initialize`

This item selects whether items in the `FORMS MENU` can be edited or only viewed by the operator. `Initialize` will reset the value of all the items for all forms to factory default values.

Interface Menu

Possible Values: `Edit Allowed, View Only, Initialize`

This item selects whether items in the `INTERFACE MENU` can be edited or only viewed by the operator. `Initialize` will reset the value of all the items for all interfaces to factory default values.

Options Menu

Possible Values: `Edit Allowed, View Only, Initialize`

This item selects whether items in the `OPTIONS MENU` can be edited or only viewed by the operator. `Initialize` will reset the value of all the items in the options menu to factory default values.

USING REMOTE SETUP

The FormsPro 4000se series printers may be completely configured for operation by using the front panel buttons to access the printer setup menus. In addition, many of the items that can be configured via the front panel setup menus can also be configured remotely as described in this chapter.

Remote Setup via Windows Application

Printek provides a remote setup program for Windows 95, 98, 2000 and NT users. This provides a convenient method for graphically configuring the printer. Visit www.printek.com to download the free application.

Remote Setup via Generic Text File

Remote setup commands are placed in a remote setup file on a host computer. This file may then be sent to the printer. The remote setup file must be a text only file* with each line terminated by a Line Feed (LF) character.

The available commands listed below are shown with a combination of upper and lower case letters to enhance readability. However, the commands are not case sensitive. All characters are converted to upper case before processing (except for form names, which are contained in double quotes). White space may also be inserted to enhance readability; it will be stripped from the commands before processing.

Each line of the file is processed individually, and must conform to one of four possible formats:

1. A blank line (ignored).
2. A comment line, which begins with a semicolon "`;`" (ignored).
3. A heading line, which is enclosed in square brackets "`[]`".
4. An item setup line, of the format `item=value`.

Each item setup line must appear under the appropriate heading line. The first heading line in the file must be `[BeginPrintekSetup]`. The last heading line in the file must be `[EndPrintekSetup]`. All other heading lines and item setup lines are optional.

If any errors exist in the remote setup file, no changes will be made to the printer configuration. When possible, the printer will indicate the line number in the file where the first error occurred. Counting of lines begins with 1 at the `[BeginPrintekSetup]` heading line. Any lines preceding this will not be processed, and will not be counted.

Before sending the remote setup file to the printer, minimal setup is required via an escape sequence. The I/O interface to be used for remote setup must be configured appropriately to communicate with the host system, and printer must be placed in remote setup mode. This is done by sending a 3-byte escape sequence to the printer. This sequence is ESC; or hexadecimal 1B 1B 3B. This sequence may be included at the beginning of the text file.

After this is done, the printer will reset, beep the bell to alert the operator, and display the message "`Waiting For Remote Setup`". The remote setup file may now be sent to the printer.

After the printer receives the remote setup file (without error), all specified configuration changes will be made, the printer will reset. When this reset is complete, the printer will be ready for normal interaction with the host system. Errors in the setup file are handled as Fatal errors. Test the setup file before sending it to a remote printer.

The available heading lines, and item setup lines, are documented below. Note that all the legal values are shown for each item, but in use only one value may be supplied in the setup file. An example file follows these definitions.

**Note that the 3-byte escape sequence can be included as the first 3 bytes in the remote setup file.*

Remote Setup Line Definitions

```
[BeginPrintekSetup]
AlignPrint=FactoryDefaults
Forms=FactoryDefaults
Interfaces=FactoryDefaults
Options=FactoryDefaults
Security=FactoryDefaults

[Form0] ... [Form9]
MovePrintLeft=0.00 ... 9.99
MovePrintRight=0.00 ... 9.99
MovePrintUp=0.00 ... 9.99
MovePrintDown=0.00 ... 9.99
FormName="UPTO16CHARACTERS"
TractorPath=Front,Center,Rear,
AutomaticCut=No,Yes
LinesPerInch=6,8
FormLength=1 ... 227
TopMargin=0 ... 226
BottomMargin=0 ... 226
CharactersPerInch=10,12,13.3,15,16.74,17.14,2
0
LeftMargin=0 ... 268
RightMargin=4 ... 272
Font=Epson_FX_FD,Epson_FX_DF,Epson_FX_LQ,

PC_English_FD,PC_English_DF,PC_English_LQ,
     PC_Latin2_FD,PC_Latin2_DF,PC_Latin2_LQ,
     DEC_LA120_FD,DEC_LA120_DF,DEC_LA120_LQ,
     EBCDIC_FD,EBCDIC_DF,EBCDIC_LQ,
     OCR_A_FD,OCR_B_FD,
Roman-8 FD,DF,LQ,ML
Euro (858) FD,DF,LQ
Euro (850) FD,DF,LQ
DraftSpeed=Normal,Fast
ImpactForce=Normal,High
Language=USA,France,Germany,England,Denmark,
     Sweden,Italy,Spain,Japan,Finland
Zero=Normal,Slashed
Unidirectional=No,Yes

[SerialInterface]
```

```
Emulation=ANSI_X3.64,Epson,IBM_Proprinter,
     DEC_LA120,TTY,Printek,Genicom_3840,
     Genicom_3410
AutoCR=Off,On
AutoLF=Off,On
HostFFatTOF=No,Yes
Characters=Control,Printable
MinimumBuffer=No,Yes
BaudRate=110,150,300,600,1200,2400,
     4800,9600
DataBits=8,7
StopBits=1,2
Parity=None,Even,Odd
BusyPolarity=Low,High
DTR=Power,Online,Busy
XON/XOFF=Off,On
ETX/ACK=Off,On

[Parallel/LAN Interface]
Emulation=ANSI_X3.64,Epson,IBM_Proprinter,
DEC_LA120/210,TTY,Printek,Genicom_3840,Genico
m_3410
AutoCR=Off,On
AutoLF=Off,On
HostFFatTOF=No,Yes
Characters=Control,Printable
MinimumBuffer=No,Yes

[Options]
MaxFormAllowed=0 ... 9
AutoScroll=Off,1 ... 15
PaperOutFault=BreakPage,ReprintPage,FinishPag
e
PageSize=0K . . . 28K
TopOfBarcode=Off, On
TopOfOversized=Off, On
IgnoreCharacter=Off, On
CharToIgnore=0 . . . 255
TruncateLines=No,Yes

[Imager/ImagerPlusInterface]
Emulation=QMSCodeVVersion2,
     PrintronixCodeVVersion2,PrintronixIGP
```

```
ControlCharacter=01h ... 09h,0Eh ... FFh
LineTerminator=LF,CR
BarCodeDensity=LowRes,MediumRes,HighRes,
     GraphicsMediumRes
QMSCharacterSet=USA,UnitedKingdom,
     Sweden/Finland,Norway/Denmark,Japan,
     Germany,France,Italy,Spain,PCSubset,
     CodeVVersion1
Translation=NotActive,Active
FreeFormat=NotActive,Active
IgnoreData=NotActive,Active
ImagerZero=Slashed,Normal
LineRegistration=NotMaintained,Maintained
VerticalDPI=72,70
VerticalTextSpacing=Version2,Version1
CodeVSpaceFields=Process,Ignore
IGPCharacterSet=ASCII,Germany,Sweden,Denmark,
     Norway,Finland,English,Dutch,
     France,Spain,Italy,Turkey
DeleteLogos=No,Yes
QuietMode=NotActive,Active
Spacing=IGP10/20/40,IGP30

[Security]
AlignPrint=ViewOnly,EditAllowed
FormsMenu=ViewOnly,EditAllowed
InterfaceMenu=ViewOnly,EditAllowed
OptionsMenu=ViewOnly,EditAllowed

[EndPrintekSetup]
```

Remote Setup Example File

The following example will set up three forms. Before the forms are set up, "AlignPrint" and all "Forms" will be reset to their factory default values so that only the "non-default" values have to be set.

The first form will begin printing one line from the top-of-form, be named "CHECKS", have a form length of 42 lines (7 inches at 6 LPI), and use the Epson FX Draft font.

The second form will begin printing two characters (at 10 CPI) from the left edge and two lines (at 6 LPI) from the top edge of the form. The name will be "INVOICES" and will print using the Epson FX Draft font.

The third form will begin printing two lines (at 8 LPI) from the top edge of the form. The name will be "REPORTS", and printing will be at eight LPI with a form length of 8½ inches.

```
;     Example setup file for three forms.

[BeginPrintekSetup]
AlignPrint=FactoryDefaults
Forms=FactoryDefaults
[Form0]
MovePrintDown=0.17
FormName="CHECKS"
FormLength=42
Font=Epson_FX_DF
[Form1]
MovePrintRight=0.20
MovePrintDown=0.33
FormName="INVOICES"
Font=Epson_FX_DF
[Form2]
MovePrintDown=0.25
FormName="REPORTS"
LinesPerInch=8
FormLength=68
CharactersPerInch=12
[EndPrintekSetup]
```

USING THE OPTIONAL SETUP MODULE

Introduction

The optional Setup Module is a small cartridge that plugs directly into the RS-232 Serial connector on the rear of any FormsPro 4000se series printer. This module is used to store a second copy of the current Setup configuration of the printer. This may then be used to restore settings after a printer is serviced or to copy the same configuration settings to another printer. These uses are discussed immediately following the installation instructions.

Setup Module Installation

To install the Setup Module, perform the following steps.

1. Turn off power to the printer.
2. Disconnect the cable plugged into the serial port if one is present.
3. Plug the Setup Module into the serial port.
4. If a cable was present in step 2, reconnect it to the connector on the rear of the Setup Module.
5. Turn on power to the printer.
6. If this is not the first time the Setup Module has been connected to a printer, then proceed with step 7.

   If this is the first time the Setup Module has ever been attached to a printer, the printer will temporarily display the following message.

When the message disappears, installation is complete and the printer will continue with its normal power up procedure.

```
Initializing
Setup Module
```

7. The printer will now compare the configuration data in its internal memory to the data in the Setup Module. If the data is not an exact match, proceed with step 8.

   If the data in the printer and the data in the module are an exact match, installation is complete and the printer will complete its power up procedure.

8. The printer has now determined that the data in the Setup Module does not exactly match the data in the printer's internal memory. The printer will now display the following message and the bell will beep to get the operator's attention. Proceed to step 9.

```
New Setup
Module
Detected
```

9. Press the ONLINE button. The printer will display the following message. You must now make one of the selections as described below.

```
Load = Read
Unload = Write
```

   If you wish to copy the Setup data to the printer from the Setup Module, press the LOAD button. The printer will display the following message and will now be configured according to the information that was in the Setup Module.

```
Copying Setup
to Printer
```

If you wish to copy the Setup data to the Setup Module from the printer, press the UNLOAD button. The printer will display the next message and the Setup Module will now contain a copy of the Setup information in the printer.

```
Copying Setup
  to Module
```

After one of the above selections is made, installation is complete, the ONLINE indicator will be turned off and the printer will finish its power up procedure. If you are not sure which button to press, refer to either of the following sections for more information.

Using the Setup Module to Maintain a Backup Copy of Setup Information for a Single Printer

This use of the Setup Module provides a method of automatically maintaining a copy of the Setup configuration in case a printer should ever need to be repaired or if it is replaced under a service contract.

To use the Setup Module in this manner, you only need to perform the installation procedure once and then forget about it. The printer will automatically keep the Setup Module updated with any changes that are made to the printer using the front panel Setup as described in "PRINTER CONFIGURATION" beginning on page 43. As long as the Setup Module remains on the same printer, the installation procedure will not have to be repeated.

If the printer does someday require repair or replacement, simply perform the installation procedure again on the repaired or replacement printer and in step 9 choose "Copy to Printer". Depending upon what was repaired in the printer, the Setup information in the printer's memory may not have been changed. In this case the printer will power up normally and no message will be displayed.

Using the Setup Module to Copy Setup Data From One Printer to Another

This use of the Setup Module is beneficial when installing or updating several printers that need to be configured exactly the same. To do this, you will need to perform the installation procedure once for each printer.

First, install the Setup Module on the printer where the Setup data is to be copied from. If the printer determines that steps 8 and 9 are required, choose "Copy to Module" in step 9 and allow the printer's power up procedures to complete. If any additional changes need to be made to the configuration of this printer, enter Setup and make them before removing the Setup Module. Any changes made will automatically be stored both in the printer's internal memory and the Setup Module.

You may now power off the printer and remove the Setup Module. Remember to reconnect the serial cable if one was attached.

Now perform the installation procedure on each of the printers that are to be configured the same as the first. In step 9 be sure to choose "Copy to Printer". After the Setup Module is removed, remember to reconnect the serial cable if one was attached.

PRINTER RESET CONDITIONS

The following list describes conditions that are assumed whenever power is applied to the printer, changes have been made in SETUP, or a reset escape sequence is received (when the printer is operating in an emulation mode that supports such a sequence).

This list includes all variables that you can modify for all emulations, even though some emulations cannot modify all of the variables shown. Refer to the appropriate section of this manual for the emulation you are using.

Variable	Reset Condition
character pitch	according to current form setup
left margin	according to current form setup
right margin	according to current form setup
line pitch	according to current form setup
form length	according to current form setup
top margin	according to current form setup
bottom margin	according to current form setup
font	according to current form setup
impact mode	according to current form setup
language	according to current form setup
normal/slashed zero	according to current form setup
auto cut mode	according to current form setup
unidirectional mode	according to current form setup
top of form	set to current position
text in an incomplete line	discarded
input buffer	cleared (unless reset from host)
control of data bit 8	accepted as received
control character symbols	according to interface setup
italics	off
double high	off
double strike	off
double wide	off
emphasized	off
superscript/subscript	off
underline	off

horizontal tabs	to every eight columns
vertical tabs	cleared

CONTROL CODE AND ESCAPE SEQUENCE SUMMARIES

Genicom 3840 and 3410 Emulation

BEL	Bell
BS	Backspace
CR	Carriage Return
CSI	Control Sequence Introducer
ESC D	Line Feed
ESC E	New Line
ESC ESC n	Select Software Interface n
ESC H	Set Horizontal Tab
ESC J	Set Vertical Tab
ESC K	Subscript Printing
ESC L	Superscript Printing
ESC P <graphics> ESC \	6 Pin Graphics Mode
ESC [(p1);(p2)<SP>B	Oversize Font / Graphic Size Modification
ESC [(p1);(p2)<SP>G	Line / Character Spacing
ESC [(p)`	Horizontal Position Absolute
ESC [(p)a	Horizontal Position Relative
ESC [(p)d	Vertical Position Absolute
ESC [(p)e	Vertical Position Relative
ESC [(p1);(p2)f	Vertical and Horizontal Position Absolute
ESC [(Ps)g	Clear Tabs
ESC [(p)h	Set Auto CR on LF
ESC [(p)j	Horizontal Position Backwards
ESC [(p)k	Vertical Position Backwards
ESC [(p)l	Reset Auto CR on LF
ESC [(p1);...(pn)m	Font and Print Modes
ESC [(p1)p	Paper Path
ESC [(p1)q	Graphics Density
ESC [(p1);(p2);(p3)r	Forms Setup
ESC [(p1);(p2)s	Margins Setup
ESC [(p1)t	Oversized Font / Barcode Mode
ESC [(p1);(p2);...(p22)u	Set Horizontal Tabs at Certain Positions

Genicom 3840 and 3410 Emulation (cont.)

ESC [(p1);(p2);...(p12)v	Set Vertical Tabs at Certain Positions
ESC [(p1);(p2)<SP>{	Paper Shear
ESC [(p1);(p2);...(p12)}	Set Barcode Parameter
ESC]6;4;(p3);(p4)ESC\	Straps and Options
ESC c	Reset
ETX	End of Text
FF	Form Feed
HT	Horizontal Tab
HTS	Set Horizontal Tab Stop
IND	Index
LF	Line Feed
NEL	Next Line
PLD	Partial Line Down (Subscript)
PLU	Partial Line Up (Superscript)
VT	Vertical Tab
VTS	Set Vertical Tab Stop

ANSI X3.64 Emulation

BEL	Bell
BS	Backspace
CR	Carriage Return
CSI	Control Sequence Introducer
ESC D	Line Feed
ESC E	New Line
ESC ESC *n*	Select Software Interface *n*
ESC H	Set Horizontal Tab Stop
ESC J	Set Vertical Tab Stop
ESC K	Partial Line Down
ESC L	Partial Line Up
ESC [*n1* ; *n2* SP G	Set Character and Line Spacing
ESC [*n* `	Absolute Horizontal Tab
ESC [*n* a	Relative Horizontal Tab
ESC [*n* d	Absolute Vertical Tab
ESC [*n* e	Relative Vertical Tab
ESC [g	Clear Horizontal Tab Stop
ESC [0 g	Clear Horizontal Tab Stop
ESC [1 g	Clear Vertical Tab Stop
ESC [2 g	Clear All Horizontal Tab Stops
ESC [3 g	Clear All Horizontal Tab Stops

ESC [4 g	Clear All Vertical Tab Stops

Ansi X3.64 Emulation (Cont.)

ESC [20 h	Select Automatic Carriage Return
ESC [20 l	Cancel Automatic Carriage Return
ESC [*n* m	Select Graphic Rendition
ESC c	Reset
ETX	End of Text
FF	Form Feed
HT	Horizontal Tab
HTS	Set Horizontal Tab Stop
IND	Line Feed
LF	Line Feed
NEL	New Line
PLD	Partial Line Down
PLU	Partial Line Up
VT	Vertical Tab
VTS	Set Vertical Tab Stop

Epson Fx Emulation

BEL	Bell
BS	Backspace
CAN	Cancel Line
CR	Carriage Return
DC2	Cancel Condensed Mode
DC3	Deselect Printer
DC4	Cancel Double-Wide Mode (one line)
DEL	Delete Character
ESC ! *n*	Master Print Mode Select
ESC #	Cancel MSB Control
ESC $ *n1 n2*	Absolute Horizontal Tab
ESC * *m n1 n2 data*	*m* DPI Graphics
ESC - *n*	Underline Mode
ESC 0	Select 8 LPI
ESC 1	Set Line Spacing to 7/72"
ESC 2	Select 6 LPI
ESC 3 *n*	Set Line Spacing to *n*/216"
ESC 4	Select Italic Mode
ESC 5	Cancel Italic Mode
ESC 6	Enable Printing of High Symbols
ESC 7	Disable Printing of High Symbols
ESC <	Unidirectional Mode (one line)
ESC =	Set MSB to 0
ESC >	Set MSB to 1

Epson Fx Emulation (Cont.)

ESC @	Reset
ESC A *n*	Set Line Spacing to *n*/72"
ESC B *n1 n2 ... nx* NUL	Set Vertical Tab Stops
ESC C NUL *n*	Set Form Length in Inches
ESC C *n*	Set Form Length in Lines
ESC D *n1 n2 ... nx* NUL	Set Horizontal Tab Stops
ESC E	Select Emphasized Mode
ESC EM *n*	Load Form
ESC ESC *n*	Select Software Interface *n*
ESC F	Cancel Emphasized Mode
ESC G	Select Double-Strike Mode
ESC H	Cancel Double-Strike Mode
ESC I *n*	Printing of Low Symbols
ESC J *n*	Variable Distance Line Feed
ESC K *n1 n2 data*	60 DPI Graphics
ESC L *n1 n2 data*	120 DPI Graphics
ESC M	Select 12 CPI
ESC N *n*	Set Perforation Skip
ESC O	Cancel Perforation Skip
ESC P	Select 10 CPI
ESC Q *n*	Set Right Margin
ESC R *n*	Select International Character Set
ESC S *n*	Select Subscript or Superscript Mode
ESC SI	Select Condensed Mode
ESC SO	Select Double-Wide Mode (one line)
ESC T	Cancel Subscript and Superscript Mode
ESC U *n*	Unidirectional Mode
ESC W *n*	Double-Wide Mode
ESC Y *n1 n2 data*	High Speed 120 DPI Graphics
ESC Z *n1 n2 data*	High Speed 240 DPI Graphics
ESC \ n1 n2	Relative Horizontal Tab
ESC g	Select 15 CPI
ESC j *n*	Variable Distance Reverse Line Feed
ESC k *n*	Select Font
ESC l *n*	Set Left Margin
ESC t *n*	Character Table (Italic vs. Extended)
ESC w *n*	Double-High Mode
ESC x *n*	Select Draft or Letter Quality
ETX	End of Text
FF	Form Feed
HT	Horizontal Tab
LF	Line Feed
SI	Select Condensed Mode
SO	Select Double-Wide Mode (one line)
VT	Vertical Tab
XOFF	Deselect Printer

IBM Proprinter Emulation

BEL	Bell
BS	Backspace
CAN	Cancel Line
CR	Carriage Return
DC2	Select 10 CPI
DC4	Cancel Double-Wide Mode (one line)
ESC - *n*	Underline Mode
ESC 0	Select 8 LPI
ESC 1	Set Line Spacing to 7/72"
ESC 2	Start Line Spacing
ESC 3 *n*	Set Line Spacing to *n*/216"
ESC 4	Set Top of Form
ESC 5 *n*	Automatic Line Feed
ESC 6	Select Character Set 2
ESC 7	Select Character Set 1
ESC :	Select 12 CPI
ESC A *n*	Set Line Spacing to *n*/72"
ESC B *n1 n2* ... *nx* NUL	Set Vertical Tab Stops
ESC C NUL *n*	Set Form Length in Inches
ESC C *n*	Set Form Length in Lines
ESC D *n1 n2* ... *nx* NUL	Set Horizontal Tab Stops
ESC E	Select Emphasized Mode
ESC ESC *n*	Select Software Interface *n*
ESC F	Cancel Emphasized Mode
ESC G	Select Double-Strike Mode
ESC H	Cancel Double-Strike Mode
ESC I *n*	Select Print Mode
ESC J *n*	Variable Distance Line Feed
ESC K *n1 n2 data*	60 DPI Graphics
ESC L *n1 n2 data*	120 DPI Graphics
ESC N *n*	Set Perforation Skip
ESC O	Cancel Perforation Skip
ESC Q *n*	Deselect Printer
ESC R	Reset Horiz. and Vertical Tab Stops
ESC S *n*	Select Subscript or Superscript Mode
ESC SI	Select Condensed Mode
ESC SO	Select Double-Wide Mode (one line)
ESC T	Cancel Subscript and Superscript Mode
ESC U *n*	Unidirectional Mode
ESC W *n*	Double-Wide Mode
ESC X *n1 n2*	Set Left and Right Margin
ESC Y *n1 n2 data*	High Speed 120 DPI Graphics
ESC Z *n1 n2 data*	High Speed 240 DPI Graphics
ESC [@ *n1 n2 m1 m2 m3 m4*	Double-High Mode
ESC \ *n1 n2*	Print Characters

IBM Proprinter Emulation (Cont.)

ESC ^ *n*	Print Single Character
ETX	End of Text
FF	Form Feed
HT	Horizontal Tab
LF	Line Feed
SI	Select Condensed Mode
SO	Select Double-Wide Mode (one line)
VT	Vertical Tab

LA-120/210 Emulation

BEL	Bell
BS	Backspace
CR	Carriage Return
CSI	Control Sequence Introducer
DEL	Delete
ESC (*a*	Select International Character Set
ESC 1	Set Horizontal Tab Stop
ESC 2	Clear All Horizontal Tab Stops
ESC 3	Set Vertical Tab Stop
ESC 4	Clear All Vertical Tab Stops
ESC D	Line Feed
ESC E	New Line
ESC ESC *n*	Select Software Interface *n*
ESC H	Set Horizontal Tab Stop
ESC J	Set Vertical Tab Stop
ESC [	Control Sequence Introducer
ESC [*n* `	Absolute Horizontal Tab
ESC [*n* a	Relative Horizontal Tab
ESC [c	Printer Identification
ESC [0 c	Printer Identification
ESC [*n* d	Absolute Vertical Tab
ESC [*n* e	Relative Vertical Tab
ESC [g	Clear Horizontal Tab Stop
ESC [0 g	Clear Horizontal Tab Stop
ESC [1 g	Clear Vertical Tab Stop
ESC [2 g	Clear All Horizontal Tab Stops
ESC [3 g	Clear All Horizontal Tab Stops
ESC [4 g	Clear All Vertical Tab Stops
ESC [20 h	Select Automatic Carriage Return
ESC [20 l	Cancel Automatic Carriage Return
ESC [*n* m	Select Graphic Rendition
ESC [*n1* ; *n2* r	Set Top and Bottom Margins
ESC [*n1* ; *n2* s	Set Left and Right Margin
ESC [*n* t	Set Form Length in Lines

LA-120/210 Emulation (cont.)

ESC [*n1* ; *n2* ; ... *nx* u	Set Horizontal Tab Stops
ESC [*n1* ; *n2* ; ... *nx* v	Set Vertical Tab Stops
ESC [*n* w	Set Character Spacing
ESC [*n* z	Set Line Spacing
ETX	End of Text
FF	Form Feed
HT	Horizontal Tab
HTS	Set Horizontal Tab Stop
IND	Line Feed
LF	Line Feed
NEL	New Line
VT	Vertical Tab
VTS	Set Vertical Tab Stop

Simple TTY Emulation

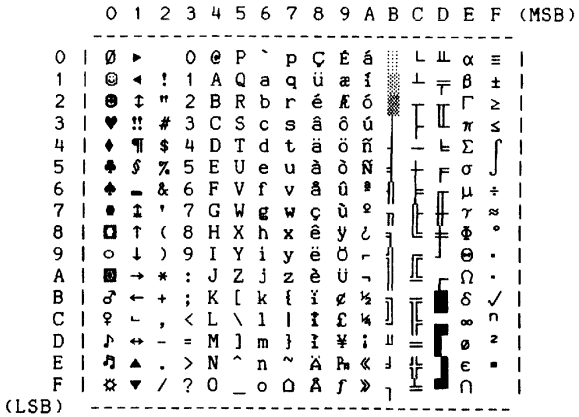
BEL	Bell
BS	Backspace
CR	Carriage Return
ESC ESC *n*	Select Software Interface *n*
ETX	End of Text
FF	Form Feed
HT	Horizontal Tab
LF	Line Feed
VT	Vertical Tab

Printek Emulation

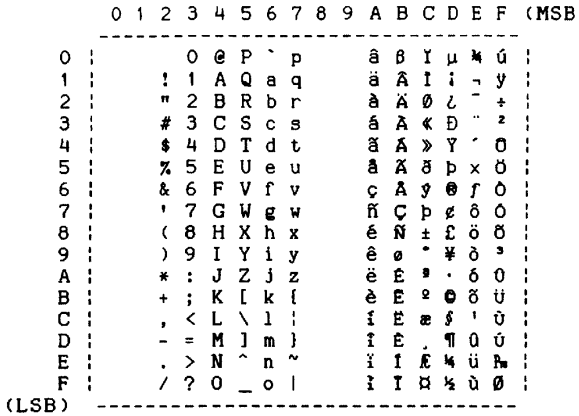
BEL	Bell
BS	Backspace
CR	Carriage Return
DC3	Deselect Printer
ESC # *m n1 n2 data*	*m* DPI Graphics
ESC %	Line Feed Boundary
ESC * *m n1 n2 data*	*m* DPI Graphics
ESC @	Reset
ESC A *n*	Automatic Modes
ESC B *n*	Auto Cut Mode
ESC C	Cut
ESC D *n*	Double-Strike Mode
ESC E *n*	Emphasized Mode
ESC ESC *n*	Select Software Interface *n*
ESC F *n*	Select Font
ESC FF *n*	Set Form Length in Lines
ESC G *n*	Modify Print Head Gap
ESC H *n1 n2*	Set Left and Right Margin
ESC HT *n1 n2 ... nx* NUL	Set Horizontal Tab Stops
ESC I *n*	Set Print Head Force
ESC L *n*	Load Form
ESC LF *n*	Set Line Spacing to *n*/288"
ESC Q *n*	Select Font Quality
ESC R	Reset Horiz. and Vertical Tab Stops
ESC S *n*	Select Script Modes
ESC SP *n*	Set character Spacing
ESC U *n*	Unidirectional Mode
ESC V *n1 n2*	Set Top and Bottom Margins
ESC VT *n1 n2 ... nx* NUL	Set Vertical Tab Stops
ESC W *n*	Double-Wide Mode
ESC \ *n*	Print Single Character
ESC ^	Reverse Line Feed
ESC _ *n*	Underline Mode
ETX	End of Text
FF	Form Feed
HT	Horizontal Tab
LF	Line Feed
VT	Vertical Tab
XOFF	Deselect Printer

(LSB)	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	(MSB)
0	à	$		0	@	P	`	p	à	$		0	@	P	`	p	
1	è	ß	!	1	A	Q	a	q	è	ß	!	1	A	Q	a	q	
2	ù	Æ	"	2	B	R	b	r	ù	Æ	"	2	B	R	b	r	
3	ò	æ	#	3	C	S	c	s	ò	æ	#	3	C	S	c	s	
4	ì	Ø	$	4	D	T	d	t	ì	Ø	$	4	D	T	d	t	
5	°	ø	%	5	E	U	e	u	°	ø	%	5	E	U	e	u	
6	£	¨	&	6	F	V	f	v	£	¨	&	6	F	V	f	v	
7	¡	Ä	'	7	G	W	g	w	¡	Ä	'	7	G	W	g	w	
8	¿	Ö	(	8	H	X	h	x	¿	Ö	(	8	H	X	h	x	
9	Ñ	Ü	)	9	I	Y	i	y	Ñ	Ü	)	9	I	Y	i	y	
A	ñ	ä	*	:	J	Z	j	z	ñ	ä	*	:	J	Z	j	z	
B	¤	ö	+	;	K	[	k	{	¤	ö	+	;	K	[	k	{	
C	₧	ü	,	<	L	\	l	¦	₧	ü	,	<	L	\	l	¦	
D	Å	É	-	=	M	]	m	}	Å	É	-	=	M	]	m	}	
E	å	é	.	>	N	^	n	~	å	é	.	>	N	^	n	~	
F	ç	¥	/	?	O	_	o	Ø	ç	¥	/	?	O	_	o	Ø	

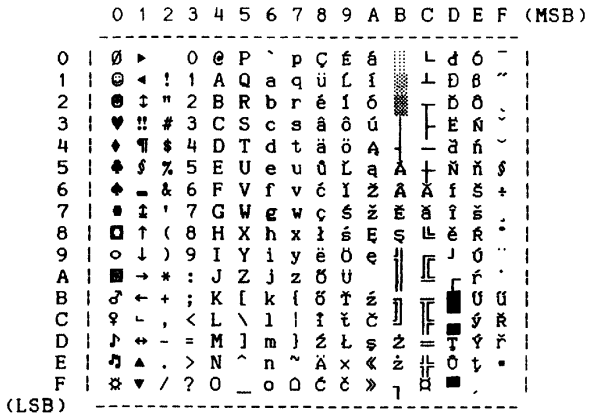
Epson FX Font Character Set



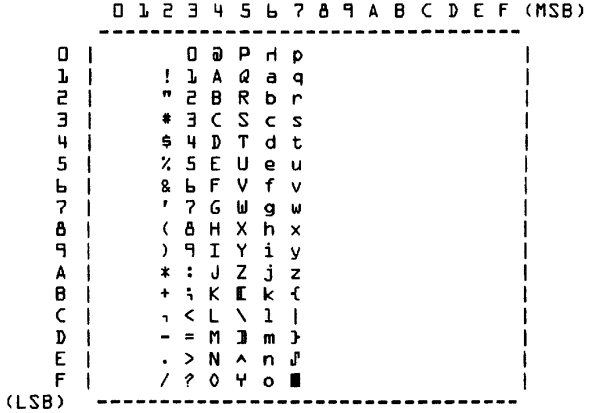
PC Font Character Set



EBCDIC Font Character Set



PC Latin 2 (Slavic) Font Character Set



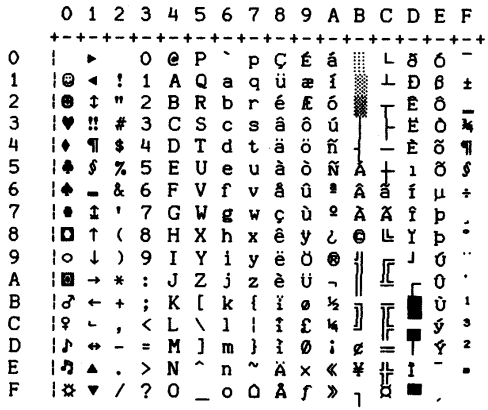
OCR-A Font Character Set

(LSB)	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	(MSB)
0				0	@	P	`	p									
1			!	1	A	Q	a	q									
2			"	2	B	R	b	r									
3			#	3	C	S	c	s									
4			$	4	D	T	d	t									
5			%	5	E	U	e	u									
6			&	6	F	V	f	v									
7			'	7	G	W	g	w									
8			(	8	H	X	h	x									
9			)	9	I	Y	i	y									
A			*	:	J	Z	j	z									
B			+	;	K	[	k	{									
C			,	<	L	\	l	|									
D			-	=	M	]	m	}									
E			.	>	N	^	n	~									
F			/	?	O	_	o	■									

OCR-B Font Character Set

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		▶		0	@	P	`	p	Ç	É	á	⣿	└	ð	ó	¯
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	▒	┴	Ð	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	‗
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	€	Õ	§
6	♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	í	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	À	Ã	î	þ	¸
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	ù	¹
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	ý	³
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	╥	Ý	²
E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	╙	¯	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	¤	▀	´	

ML Euro (858)



ML (850)

SPECIFICATIONS

Print Speeds

Text Modes	Speed
Fast Draft	530 cps
Draft	400 cps
Fast Draft High Impact	250 cps
Draft High Impact	200 cps
Letter Quality	100 cps
Optical Quality	65 cps

Graphics Modes	Speed (up to) *
8 Wire Graphics	19,200 dps
8 Wire Fast Graphics	25,600 dps
9 Wire Graphics	21,600 dps
9 Wire Fast Graphics	28,800 dps

Character Matrix

Fast Draft 7x9 in 9x9 cell.
Draft 9x9 in 12x9 cell.
Letter Quality 18x18 in 24x18 cell.
Optical Quality 27x18 in 36x18 cell.

Graphics Density

60 to 240 dpi horizontally x 72 dpi vertically. *

Character Sets

Epson FX fast draft, draft and letter quality.
IBM Proprinter fast draft, draft and letter quality.
EBCDIC fast draft, draft and letter quality.
Latin II (Slavic) fast draft, draft, and letter quality.
OCR-A optical quality.
OCR-B optical quality.
Multilingual (Code Page 858) fast draft, draft and letter quality.
Multilingual (Code Page 850) fast draft, draft and letter quality.

Character Spacing

5, 6, 6.7, 7.5, 8.4, 8.6, 10, 12, 13.3, 15, 16.7, 17.1, and 20 cpi. *

Line Spacing

6 lpi, 8 lpi, or programmable in 1/216th or 1/288th of an inch. *

Line Length

13.6 inches.

Control Code And Escape Sequence Emulations

Genicom 3840
Genicom 3410
ANSI X3.64
Epson FX
IBM Proprinter
DEC LA-120 and LA-210
Simple TTY
Printek
Basic Bar Code

Paper Handling

Bottom tractor feed.
Straight paper path with zero waste tear off.
Paper width: 2.3 to 15 inches.
Paper Slew Rate: 12 inches per second.

Ribbon

23,000,000 character, mobius loop cartridge.

Special Forms Handling Features

Print up to six part forms (.025" maximum thickness).
Easy access to tractors.
Front panel and host form selection.
Automatic head gap.
Paper out sensing.
Paper motion sensing.
Paper edge sensing.
Page reprint.

Nonvolatile memory for ten form setups. Parameters for each form include: custom form name, tractor path (only in FormsPro 4503se), automatic forms cutting (only if FormsCutter is installed), cpi, left margin, right margin, lpi, form length, top margin, bottom margin, font, character impact mode, language*, slashed or nonslashed zero, and unidirectional printing.

Computer Interface

Centronics compatible Parallel.

Asynchronous RS-232: 110 to 9600 baud; Even, Odd, or No parity; 7 or 8 data bits; 1 or 2 stop bits; XON/XOFF, ETX/ACK, and Hardware handshake.

Input Buffer Size: 32K bytes.

Operator Controls/Indicators

Normal Operating Mode

Indicators: Online/Status LED; 2x16 character LCD for current form selection (and paper path in FormsPro 4503se), on/off line status and error descriptions.

Controls: Online, Form Feed/Load, Form Select/Unload, Align Print, and enter Setup.

Setup Mode

Indicators: Online/Status LED to indicate Setup mode is active.

Controls: Next Function, Previous Function, Next Value, Previous Value, Exit Setup.

Setup Features: Forms Menu for setting form and printing parameters, Interface Menu for setting all I/O parameters, Option Menu for setting/installing option parameters, Test Menu, and Security Menu for disabling changes to align print, interface, form, and option settings.

Reliability

Unit automatically measures and sets operating parameters each time unit is powered on.

Forced air-cooling.

MTBF 10,000 hours on electronics, 100% duty cycle.

Print head life of 500,000,000 draft mode (or equivalent) characters.

Printer life excluding print head of 1,000,000 pages.

Warranty

Printer: One year limited warranty for defects in materials and/or workmanship.

Print Head: 500 million draft equivalent character life. One year limited warranty for defects in materials and/or workmanship. Limited

print head warranty may be extended to two years with the use of only Printek® brand ribbons.

Environmental Specifications

Power requirements: 100-250 VAC, 50-60Hz Autoswitching

Power consumption: 18 W non-printing, 60 W printing.
Energy Start Compliant

Audible noise: ≤65 dBA, cooling fan automatically switch to low speed when not printing.

Operating Temperature: 50°F to 95°F.

Relative Humidity: 20% to 80% non-condensing.

Physical Size: 11.8" High x 26.25" Wide x 20.5" Deep.

Weight: 43 lbs (53 lbs shipping).

Options

Ethernet 10/100BaseT Print Server
Wireless Ethernet Print Server
ImagerPlus Graphics Co-Processor
Paper Cutter
Setup Module
Print Stand

* May be emulation dependent.

Specifications subject to change without notice.

GLOSSARY OF TERMS

ANSI	American National Standards Institute.
ASCII	American Standard Code for Information Interchange.
baud rate	The bit rate at which characters are transmitted over a serial interface.
binary	Base two numbering system. Digits are represented by the characters 0 and 1.
bit	A single binary digit.
control code	A single, non-printing character, which is used to control the configuration or operation of the printer.
character pitch	The horizontal spacing of characters. Measured in cpi.
cpi	Characters-per-inch.
cps	Characters-per-second.
current line	The line upon which the next character will be printed.
current print position	The column on the current line where the next character will be printed.
default	Value or configuration that is assumed when the printer is turned on or reset.
DF	Draft Font.
dpi	Dots-per-inch. Generally used to refer to graphics density or resolution.

draft	Refers to the draft font.
EBCDIC	Extended Binary Coded Decimal Interchange Code.
escape sequence	String of characters beginning with the escape (ESC) character, which is used to control the configuration or operation of the printer. The characters that are part of this string are not printed.
fast draft	Refers to the fast draft font.
FD	Fast Draft.
font	A group of characters of a given shape or style.
FormsMaster	A superior line of serial matrix printers.
hexadecimal	Base sixteen numbering system. Digits are represented by the characters 0 through 9 and A through F.
interface	Generally refers to the connection between the printer and the host computer. May also be used in reference to the user interface at the control panel of the printer.
LCD	Liquid-Crystal Display.
LED	Light-Emitting Diode.
line pitch	The vertical spacing of characters. Measured in lpi.
lpi	Lines-per-inch.
LQ	Letter Quality.
MSB	Most-significant bit or byte. In a character, this refers to bit seven (of 0 to 7).
octal	Base eight numbering system. Digits are represented by the characters 0 through 7.

offline	Refers to the state of the printer when the ONLINE indicator is not solid green and the printer does not respond to the host computer.
online	Refers to the state of the printer when the ONLINE indicator is solid green and the printer is able to respond to the commands and text received from the host computer.
OQ	Optical Quality.
parity	A method used for detecting errors within a single character transmitted or received via an interface.
reset	Initialization of various operating parameters of the printer to the value or state assumed when the printer is powered on (default value).
top of form	The vertical position where the first line is printed on the paper. Also the position the paper is advanced to when a form feed (FF) character is received from the host or the FORM FEED button is pressed on the printer's control panel.
tractors	Devices which control the movement of the paper through the printer.